THE LEGENDS SCHOOL OF EDUCATION

In Search of Excellence

Naseemabad, Hazratbal, Srinagar.

Tutorial

FOR

Class 10th

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ENGLISH

FOOTPRINTS WITHOUT FEET

Summary: *This chapter is an excerpt from the famous novel "An Invisible man" written by H.G.Wells. The novel deals with the adventures of a scientist "Griffin" who discovers a way by which a human body can become invisible. He faces many hardships but overcomes each one of them by one way or the other.*

The chapter commences when two boys become surprised and fascinated on seeing muddy imprints of a pair of bare feet on the steps of a house in London. These imprints are of a brilliant scientist Griffin, who discovers the method of making a human body invisible. He carries out many experiments and finally swallows certain rare kinds of drugs to become transparent. He is presented in the novel and our chapter a lawless person. His landlord, being dissatisfied with him tries to expel him but he in return sets fire to his house and escapes by becoming invisible. He chooses to be a homeless rogue in mid winter, when it becomes unbearable for him to wander without clothes. He enters a big London store and uses various garments to wear, and feeds himself with food and Wine. Then he sleeps comfortably on a pile of quilts.

Next morning, when he does not wake up in time, the assistants of the store chase him and he escapes by removing the garments. Thus, he again becomes invisible. Next, he enters a theatrical company and uses its stock to cover himself. Moreover, he knocks down a shopkeeper and robs him off his money. He then goes away from London to a countryside village of Iping, where he books two rooms in a local inn. His arrival surprises everyone because of his strange get up and appearance and awkward time of arrival. His landlady tries to be friendly with him. But he avoids her and tells her that his motive of coming to Iping is seclusion. So, His landlady excuses his irritable nature considering him an eccentric person and mainly due to his advance payment.

Soon, Griffin's stolen money finishes and he puts off his landlady for the payment of rent by pretending to expect a cheque. Shortly afterwards, a clergyman and his wife get awakened by some noises in the study. They creep downstairs and find the clergyman's desk open and housekeeping money missing. Later, in the morning, Mrs. and Mr. Hall find the scientist's door wide open and decide to investigate his belongings. Suddenly, Mrs. Hall hears a sniff close to her cur. Then Griffin's hat leaps up and dashes itself in her face. A little later, the bedroom chair becomes alive and pushes the landlord and the landlady out of the room and slams the door behind them. Mrs. Hall becomes very much emotional because of her mother's furniture rising up against her. She blames Griffin for creating some evil spirits to enter her mother's furniture. The neighbours believe the abnormal behaviour of the furniture because of witchcraft but the news of theft at the clergyman's house and Griffin's presentation of ready cash create suspicion on him.

Finally, the village constable is called but Mrs. Hall starts asking the scientist about the abnormal behaviour of her furniture. The scientist becomes very furious at these queries and removes his disguising costumes. In a moment, the people at the place find themselves staring at a headless man. Now the constable tries very hard to catch the person who goes

on becoming more and more invisible. Finally, he is knocked down and Griffin shakes himself free by becoming invisible once again.

Textual Questions

Q1. How would you assess Griffin as a scientist?

Ans: As a scientist, Griffin seems to be appreciable. He is a brilliant scientist who is very determined about his experimental skill. He strives very much to make his experiment, of making a human body invisible, a success. Ultimately, when he is not able to get his desired results from his experiments, he ingests several unusual and rare drugs and makes his efforts a success by becoming invisible.

Q2. The two boys in London were surprised and fascinated. Why?

Ans: The two boys got surprised on observing the fresh muddy imprints of a pair of bare feet on the steps of a house in the middle of London. They were fascinated when they saw some new foot marks appearing one after the other without the feet being visible at all.

Q3. What did Griffin do inside the shop?

Ans. Griffin slipped into a big London store and as soon as the shop was closed, he put on warm clothes, shoes, an overcoat and a wide brimmed hat. Then he ate cold meat with coffee followed by sweets and wine. Finally, he settled down to sleep on a pile of quilts.

Q4. How did he escape from the London store?

Ans: in a London store, Griffin took rest on a pile of quilts after feeding himself at night. He was fast asleep and was not able to wake up before the store was opened by the assistants in the morning. On seeing them, the scientist got into a panic and began to run. The assistants gave him a chase. He quickly took off his clothes and escaped out of the store invisibly.

Q5. He entered the shop of a theatrical company. What did he do there?

Ans: After escaping from the London store, Griffin entered the shop of a theatrical company. He wore bandages round his forehead, put on dark glasses, false nose, big bushy side whiskers and a large hat. Then he attacked the shopkeeper from behind and robbed him of all the money he had.

Q6. Why was the arrival of this stranger in a village inn an unusual event? Give two reasons.

Ans: The arrival of this stranger in a village inn was an unusual event because it was mid-winter and the atmosphere was very chilly and deserted. Moreover, Griffin had disguised himself in a strange way. So, his strange appearance and arrival surprised everyone.

Q7. How did the scientist look when he came to the inn?

Ans: The scientist looked very strange when he came to the inn. He had his forehead covered with bandages, big bushy side whiskers and dark glasses and talked to everyone in an irritable manner. He preferred solitude and thus appeared to be an eccentric person to everyone at the inn.

Q8. The landlord's wife was convinced that Griffin was "an eccentric scientist". What made her think of Griffin in these terms?

Ans. Griffin had an uncommon and a very strange appearance. Mrs. Hall tried to be friendly with him but he avoided her and asked her not to disturb him. Besides this, his strange habits and irritable temper made her believe that he was an eccentric scientist.

Q9. What was "the curious episode" that took place in the Clergyman's study?

Ans. Very early in the morning, the clergyman and his wife heard some noises which revealed that someone was stealing money from the clergyman's desk in the study. On entering the room, they were surprised to see it empty and the money was missing from the desk.

Q10. The landlord and his wife were surprised to see the scientist's door wide open. Why were they surprised?

Ans: The landlord and his wife were surprised to see the scientist's door wide open because it was shut and locked all the time and the scientist used to get furious if anyone entered his room , as he preferred solitude. On finding the door open, Mr. and Mrs. Hall entered the room and started to investigate it. All of a sudden, Mrs. Hall heard a sniff close to her ear. After a while, Griffin's hat jumped on its own and hit her in the face. Then the bedroom chair moved, jumped and pushed them out of the room.

Q11. Mrs. Hall almost fell down the stairs in hysterics. Pick out an example of humor from what follows this incident.

Ans. Mrs. Hall was terrified by the strange incident. She believed that Griffin had made her mother's spirit enter the chair which attacked her and she felt quite disturbed on thinking that her mother's spirit rose up against her. This is a humorous incident.

Q12. The Scientist was furious. What did he do in anger? Why were the people in the bar horrified?

Ans. Mrs. Hall questioned Griffin and enquired about the incident that had happened in his room. He became furious. He shouted at her and told her that he would show her his real identity. Within just a minute, he threw off his bandages, whiskers, spectacles and false nose, due to which his head disappeared. All the people present in the bar were greatly horrified to see a headless man in front of them.

Q13. What happened to the constable?

Ans: The constable was called to capture Griffin. The scientist was putting off his clothes one by one and ultimately became totally invisible. The brave constable still tried to get hold of the invisible scientist, but he was hit by him and he fell unconscious.

Q14. The scientist was a man of "irritable temper". Give an example to prove this.

Ans: The scientist was a man of irritable temper. It has been clearly shown by many incidents. One such incident is when Mrs. Hall interrogates him about the abnormal behaviour of her furniture, he loses his temperament discloses his identity. Moreover, he dislikes friendly atmosphere and prefers loneliness which depicts that he was unsociable and a man irritable temper.

Discussion:

Q1. Do you think Griffin misused his discovery? How?

Ans. Griffin is sketched in our perception as a brilliant scientist for he discovered the formula of becoming invisible, but he was a lawless person as well. He misused his discovery in many ways. Firstly, he slipped into the 'London store and gave himself the pleasure of clothing and feeding illegally. Secondly, he went to the shop bearing the stock of a theatrical

company and disguised himself with its stock. He also attacked the shopkeeper mercilessly and robbed him of his money. He stole money from clergyman's house and finally, he had an encounter with the constable, the landlord and the landlady and escaped invisibly to further clarify his lawless

AN EXCELLENT FATHER

An "Excellent father' is an excerpt from a famous novel by Jane Austen 'Pride and Prejudice'. The important characters of this passage are Mr. and Mrs. Bennet, Jane, Elizabeth and Mr. Bingley.
Mr. Bennet: - A gentleman, who lives with his wife and five daughters at Longbourne house. Mr. Bennet seldom shows anger; he prefers to laugh at people's weaknesses.
Mrs. Bennet: - Mr. Bennet's wife; a foolish, quick tempered woman. Her chief aim in life is to and rich husbands for her daughters.
Jane: - The eldest of the Bennet daughters and also the prettiest.
Elizabeth: - The second of the Bennet daughter. She is shrewder than Jane and is always ready to speak her mind.
Kitty: - The fourth of the Bennet daughters.
Charles Bingley: - A rich handsome, eligible and single gentleman.

Summary: *This prose extract has been taken from Jane Austen's famous novel "Pride and prejudice" which after considerable revision appeared as "Pride and Prejudice" in 1813. This novel tells the story of the gradual union of two people - one held back by unconquerable pride and the other blinded by Prejudice - thus the name "Pride and Prejudice". Mr. Bennet seems to be a careless father who is not bothered about the marriage of his daughters who have attained a marriageable age. The chapter starts when Mr. Bingley rents Nether fields Park which is in the neighbourhood of Mr. Bennet's' house. Mrs. Bennet becomes very cautious about her daughter because she does not want to lose this opportunity of marrying one of her daughters to Mr. Bingley.*
Actually, this novel is written in 19th century when there was a custom that the proper) was taken over by only male members. Since Mr. Bennet had no son, so his property was to be owned by any of his close relative. That is why Mrs. Bennet was very much worried about the fate of her daughters. On hearing about the arrival of Mr. Bingley, she tells her husband to develop some familiarity with him. But he reacts very lightly to this news. He starts teasing his wife and comments that should send the girls to meet Mr. Bingley but should not go her-self for she is very beautiful even in her old age. Finally, Mrs. Bennet gets very disappointed because of her husband's loose reaction. As a result of anger, she scolds her daughter Kitty for coughing. Ultimately, when she comes to know that her husband Mr. Bennet had visited Mr. Bingley, she feels relaxed and overwhelmed. At the end she told her daughters "You have an excellent father, girls" because she comes to know that Mr. Bennet had actually paid the visit to Mr. Bingley unbeknownst to all of them.

Thinking About the text

Q1. What does Mrs. Bennet tell her husband?

Ans: Mrs. Bennet tells her husband to visit Mr. Bingley, a rich young gentleman, who rent a house in their neighbourhood.

Q2. Who takes over Netherfield Park? Why is Mrs. Bennet happy about it?

Mr. Bingley, a rich, handsome and eligible young man of North of England takes over Netherfield Park. Mrs. Bennet is happy about it because Mr. Bingley is a bachelor and she looks forward for marrying one of her daughters to him.

Q3. Why does Mrs. Bennet insist her husband to meet Mr. Bingley?

Ans: Mrs. Bennet insists her husband to meet Mr. Bingley because she does not want to miss this golden opportunity of giving one of her daughters, a happy, prosperous life by marrying her to Mr. Bingley. Moreover, she is sure that many ladies would try to exploit this chance. So she tries to persuade and insist her husband to meet Mr. Bingley.

Q4. "You take delight in vexing me. You have no compassion on my poor nerves". Explain.

Ans: Mr. Bennet is a lazy and cool minded person and he enjoys harassing his wife. He suggests his wife not to accompany her daughters for she can be chosen for marriage because of her beauty. Mrs. Bennet gets irritated and condemns her husband for making her angry. She further adds that her husband Mr. Bennet is not at all sympathetic to her sensitive feelings regarding the marriage of her daughters.

Q5. Why does Mrs. Bennet think Mrs. Long is selfish?

Mrs. Bennet thinks Mrs. Long is selfish because she has two nieces and she would not lose the chance of marrying one of them to Mr. Bingley. She would also not give Mrs. Bennet any opportunity to marry one of her daughters to the said gentleman.

Q6. How does Mr. Bennet react to the plan designed by his Wife?

Ans: Mr. Bennet does not show any excited reaction towards his wife's plan. He appears to be uninterested in this affair. He teases his wife and does not seem to be serious about this plan at all.

Q7. Why does Mrs. Bennet tell her girls that they have an excellent father?

Ans: Mrs. Bennet and girls get astonished when they come to know that the Mr. Bennet had actually paid the visit to Mr. Bingley for acquaintance. She comes to know that although Mr. Bennet appears to be least interested in the marriage of his daughters, but in the heart of hearts, he really cares for them. Mrs. Bennet is very happy with all this, that is why she tells her daughters, "What an excellent father you have girls".

Q8. Character sketch of Mrs. Bennet:

Ans. Mrs. Bennet is one of the interesting characters in the lesson. She is very different from her husband. While we laugh with Mr. Bennet, we laugh at Mrs. Bennet. Mrs. Bennet is a woman of little intelligence. She has a bad temper. She has never understood husband's character. Even when he teases her, she does not understand it, for instance when he warns her against visiting Mr. Bingley lest he might fall in love with her. Mrs. Bennet takes it in all seriousness. She feels flattered by the reference to her beauty instead of feeling offended by the ridicule. She has only one interest in life. That is getting her daughters married to rich people. For achieving her end she is ready to stoop to any level. She behaves in a funny and

ludicrous way all the time that she becomes almost a comic character. Mrs. Bennet's always complaining about her weak nerves and the indifferent attitude of Mr. Bennet towards important family matters renders her a comic character, when readers know it fully well the real situation. Mrs. Bennet is too much talkative. She cannot keep herself in check. So the character of Mrs. Bennet is a source of entertainment for the readers to a great extent.

Q9. Character sketch of Mr. Bennet:

Ans. Mr. Bennet is a strange mixture of intelligence, humour and reserve. Every word he says is full of wit and humour. Some of the best jokes in the lesson come through his lips. Mr. Bennet is the head of the family. As husband and father he does not assert his authority very much. instead of preventing follies of his wife he is habitual of amusing himself with them. Mr. Bennet's attitude towards his wife is one of mocking submission. Mrs. Bennet is very talkative by nature. She wants to give detailed reports of all her experiences to her husband. But Mr. Bennet is not in the least interested in listening to her loose talks. For instance when she starts talking about Netherfield Park, Mr. Bennet says. "You want to tell me. I have no objection to hearing it". Mr. Bennet does not like to talk much. When he talks it is mostly for teasing people. The person whom he teases most is his wife. He enjoys at her cost. He has visited the place of Mr. Bingley. But he keeps his visit a secret. He springs surprises at the right moment. We distinguish Mr. Bennet not by his appearance but by his talk. Every sentence he speaks is
typical of Mr. Bennet. He leaves a good impression upon the reader.

FROM THE DIARY OF A YOUNG GIRL

Thinking about the text

Q1. Was Anne right when she said that the world would not be interested in the musings of a thirteen year old girl?

Ans) No, she was wrong in saying so. It is the politically and socially insecure atmosphere and her own introvert nature made her think in these terms. Praise flooded from every corner of the world for the musings of the thirteen year old girl.

Q2. In which language was "the Diary of Anne Frank" originally written?

Ans) The diary of Anne Frank was originally written in the Dutch language.

Q3. Why does Anne need to give a brief sketch of her family? Does she treat "Kitty" as an insider or an outsider?

Ans) Anne thought that no one would understand a word of her stories to Kitty if she started Straight way with her story. Therefore, she thought that it would be better to give a 'brief sketch of her family before giving vent to her inmost feelings. She treats Kitty as an insider and a very close friend. She wants to share her innermost feelings with Kitty.

Q4. Haw does Anne feel about her father, her grandfather, Mrs. Kuperus and Mr. Keesing?

Ans) Anne liked her father and her grandfather. She found her father very much adorable. Mrs. Kuperus, the headmistress of the nursery school where Anne studied, loved her very much. Mr. Keesing, the math teacher, on the contrary, was very strict to Anne. He thought

she talked too much in the class for which she has to bear the burden of writing extra home work.

Q5. What does Anne write in her first essay?

Ans) In her first essay, Anne wrote that talking was a student's trait. She justified her habit of talking by calling it a trait that she inherited from her mother, because her mother also talked as much as she did. She further substantiated her stand by saying that there is not much that can be done about inherited traits.

Q6. Anne says teachers are most unpredictable. Is Mr. Keesing unpredictable? How?

Ans: Anne says so out of her own mannerism and attitude towards her teacher. Mr. Keesing, though known for his strictness, at times can't help a rapture descend on him. Mr. Keesing proves himself unpredictable. He is so amused by Anne's poem that he allows her to talk in the class.

Long walk to Freedom

Questions and Answers

Q1. Why was the May 10 an autumn day in South Africa?

Ans: On May 10, 1994 South Africa established its first non-racial government to taste the fruit of a long struggle against the white rule. The phrase "autumn day" has symbolical connotations. It symbolizes the "day of harvest" or the day of fruits. It is the fruit of freedman South Africa will taste.

Q2. At the beginning of his speech, Mandela mentions "an extra ordinary human disaster? What does he mean by this? What is the "glorious human achievement" he speaks of at the end?

Ans: The white rule for over hundreds of years and the discrimination on the bases of the colour of the skin has been called" an extraordinary human disaster. The political and social emancipation has been termed as "glorious ....human achievement"

Q3. What ideals does Nelson Mandela set out for the future of South Africa?

Ans: Nelson Mandela has a vision of a South Africa without poverty, deprivation, suffering or anynkind of discrimination.

Q4.Why did such a large number of international leaders attend the inauguration? What did it

signify the triumph for?

Ans: The leaders from all over the world had come to honor the first democratic and non racial government of South Africa. It was a common victory for justice, peace and human dignity. It signified a victory not only for the nation of South Africa but for the whole mankind.

Q5. What does Mandela mean when he says he is "simply the sum of all those African patriots" who had gone before him?

Ans: *Mandela means to say that what South Africa had achieved was not a one-man job. The establishment of a non-racial government and Mandela's becoming the first black President would have never been possible without the sacrifices of all those people who had gone before him. The victory was not the result of Mandela's struggle only, but that of all the people who had sacrificed for the cause.*

Q6. Would you agree that the depths of oppression create heights of character? How does Mandela illustrate this?

Ans: I agree with the statement of Nelson Mandela We know that the greatest men have emerged in the most difficult times. When the going gets tough, the tough get going. It proved true in the case of Mandela himself. With mounting oppression, Mandela's character scaled new heights. His compassion was for the oppressed as well as the oppressor. He wanted to free the oppressor from the chains of hatred.

Q7. What twin obligation does Mandela mention?

Ans: According to Nelson Mandela everyman has twin obligations the obligation towards one's kith and kin and the obligation towards one's people.

Q8. How did Mandela's understanding of freedom change with age and experience?

Ans: The young Mandela was growing up his understanding of freedom was also evolving. For a period, freedom meant to him the freedom to run in the fields. During his days as a student, freedom meant the freedom to read what he pleased and go where he liked. Then as a young man it meant the freedom to develop ones potential and live a happy life. But then he realized that the real freedom meant the freedom for every one w ho looked like him. All other freedoms were transitory.

Q9. How did Mandela's "hunger for freedom" change his life?

The hunger for freedom made Mandela a bold person. He became a man sans fear. His candid attitude towards the racial government forced him to become homeless and live a life of a monk. He was not less than a criminal in their eyes.'

THE SERMON AT BENARES

Think about the text

Q1. What is a Sermon? How is it different from a lecture?

Ans: A sermon is a talk on a moral or religious subject, usually given by a religious leader during a service. A lecture is a talk given to a group of people by a learned person to inform them about a subject.

Q2. When her son dies, Kisa Gotami goes from house to house what does she ask for? Does she get it? Why not?

Ans. Kisa Gotami asks for medicine to bring her dead son back to life. No, she does not get the medicine because there is no medicine to bring the dead back to life.

Q3. Kisa Gotami again goes from house to house after she speaks with the Budha. What does she ask for the second time around? Does she get it? Why not?

Ans. The Buddha had asked Kisa Gotami to get a handful of mustard seed from a house where no death had ever taken place. Kisa Gotami could find no such house. Therefore, she failed to get what the Buddha had asked for.

Q4. What does Kisa Gotami understand the second time that she failed to understand the first time? Was this what the Buddha wanted her to understand?

Ans. After going through the trial, Kisa Gotami understood that there could be no house where death had never taken place. She understood that death was common to all. She

learned that every soul must drink from the goblet of death. The Buddha wanted her to understand this very fact of life.

Q5. Why do you think Kisa Gotami understood this only the second time? In what way did the Buddha change her understanding?

Ans. When Kisa Gotami son died she asked for medicine. People told her that child was dead. She could not comprehend it.

She understood the reality of life and death only after the Buddha set her on a trial. Now, she understood that there could be no house where death had never taken place. She understood it at death as common to all and she was not the only mother whose son had died. Therefore, Buddha changed her understanding of death.

Q6. How do you usually understand the idea of selfishness? Do you agree with Kisa Gotami that she is being selfish in her grief?

Ans. Selfishness usually means thinking of one's own welfare only without any regard for others Kisa Gotami was not selfish in that sense. She realizes that though every house had lost someone, she wanted only her son to bring back to life. Therefore, she calls herself selfish.

PAPACHI'S MOTH

Thinking about the text:

Q1. Sketch the characters of Pappachi and Mammachi.

Ans: ***Character sketch of Pappachi****: Pappachi was a retired government officer. During the British period he worked as an imperial Entomologist. After independence he was raised to the post of Joint of Director. He had had, once discovered a new species of moth, but the credit was given to someone else. It was the greatest set back of his life. After Pappachi's retirement, his wife started making pickles commercially. She was quite successful in her business. Pappachi began to feel jealous of her success and growing popularity. He would often lose his temper and start beating his wife.*

Once, when he was beating his wife, his son caught hold of him and admonished him. Pappachi never spoke to her after that. He would sit on the verandah and pretend to sew buttons that were no missing onto his shirts, to create an impression that he was being neglected. Pappachi died of a severe heart attack and his death was reported in the Indian Express.

Character sketch of Mammachi*: Mammachi was Papachi's wife. She was seventeen years younger than her husband. She was still young when her husband retired from the government service. After her husband's retirement, she started making pickles commercially. Her business flourished every passing day. Her husband began to feel jealous of her success. He never gave her a helping in hand in the business. He would even beat her off and on. When his son saw him doing this, he admonished him. She was a victim of her husband's ill temper cruelty though. Mammachi cried over her husband's death, she had no love for him.*

Q.2 "I never want this to happen again," he told his father, "Ever" who says it and why?

Ans: *Pappachi's son, Chacko, says these words. Chacko, who is a scholar at Oxford, comes*

home during summer vacation. One day, he saw his father beating her mother with a brass vase. He snatches the vase from his father and warns him never to do that again.

Q3. ***"Ammu told the twins that Mammachi was crying more because she was used to him than because she loved him". In the light of the statement of a Mammachi's daughter, comment on the relationship between Mammachi and Pappachi.***

Ans: Pappachi and Mammachi did not have a cordial relationship with each other. Pappachi was almost never intimate with his wife. He would even beat her whenever he liked. Mammachi bore all her husband's cruelty patiently. With the passage she had become used to her husband's cruelty Mammachi, cried at Pappachi's death not because she loved him but because she had become used to him. Though there was no love between the husband and the wife, but the later cried at his funeral.

Q4. How does Mammachi stand out as an independent and resilient woman in the text?

Ans: Mammachi on the one hand is an oppressed woman. She patiently bears all the beatings and cruelty of her husband. But, on the other hand she is a very self-confident and resilient woman. She starts making pickles commercially. She works very hard without getting any help from her husband. Her husband feels jealous of her, and even stops talking to her. But she doesn't give up. She works single handedly to carry on with her business of pickle making.

Q5. Pick out the elements of irony from the lesson.

Ans: Pappachi discovers a new species of moth but ironically it is named after a person who was junior to Pappachi and whom Pappachi hated. Pappachi breaks his favorite rocking chair but ironically it has no effect on any one. And, although there was no love between the husband and wife, Mammachi wept bitterly at his death.

Q6. Identify instance of humour in the story.

Ans: *Pappachi buys an old Play mouth. In order to impress others, he tries to drive the car. But as he drives the car, he sweats freely inside his woolen suits. This event can be called an instance of humour in the story. Besides this, Pappachi's trying to sew the buttons that were not, missing onto his shirt is an instance of a tragic comic element in the story.*

Character sketch of Pappachi and Mammachi: *Pappachi was a retired government officer. He was a well-known imperial Entomologist. After his retirement from the Govt. service, he had come to live in Aymanem in Kerala. He had a wife and two children. But after his retirement there was a drastic change in his behaviour. He always wore black moods. He was ill-humoured and ill-tempered. He had grown into a sullen and sulky husband. He felt jealous of his wife's success in her business. He never gave her any help in her work because he thought it below his dignity to do so. On the contrary, he would often beat her with a brass flower vase. In order to get her bad name, he would often sit in the open and start sewing the buttons that were, in fact, not missing. In fact, there was a reason behind his bitterness in temper. He was denied the credit of discovering a new species of moth, and then credited to the present, Acting Director who used to be far junior to Pappachi. This was the reason for his abusive tendencies towards his family, especially his wife, Mammachi. This life of bitterness after retirement continued for many years. He died of a heart attack.*

Through his character, the writer in a suggestive way tries to convey how small things build up one's behaviour and affect lives of people.

Character sketch of Mammachi: *Mammachi was Pappachi's wife. She was seventeen years younger than her husband. She was a hard-worker. After the retirement of her husband, she started the business of pickle making. She devoted herself to the business completely. She was quite successful in her business. She was a woman of high patience and a humble wife. She did not have a cordial relationship with her husband. Her husband often gave her beating, but she never protested. She had become used to these beatings. She was the victim of her husband's wrath. Besides giving her beating, he did not speak to her. When her husband died, she cried over his death. But this was not because she loved him, but because she had become used to live with him. Thus, through the character of Mammachi, the writer has raised the issues that plague our society. She is a ready victim of male chauvinism. In fact, the readers feel sympathy for Mammachi for the maltreatment she gets in her own home.*

THE GHAT OF THE ONLY WORLD

Thinking about the text.

Q1. What were the common things between Ghosh and Shahid?

Ans: Amitav Ghosh and Agha Shahid Ali had a large number of common friends in India, America and elsewhere. They had a-common love for music and old Mumbai films. Both had a love for Roshanara and Kishore Kumar and Roganjosh, a dish they loved. They had a natural indifference to cricket

Q2. What are the things that Shahid loved?

Ans: He loved music and old Mumbai films, Roshanara and Kishore Kumar were among his favorites. He was a sort of party animal. He was very fond of good food especially Roganjosh.

Q3. How does Shahid face death? Describe the hospital scene.

Ans: Shahid knew about his approaching death. I-le was never scared of it he took it calmly. He was even philosophical about it he only said to the writer. "I love to think that l will meet my mother in the afterlife. Once Shahid had to go through a surgical procedure in a hospital. When he was relieved, a hospital escort arrived with a wheelchair. Shahid said that he was strong enough to walk on his own. But his knees buckled after a few steps. He was weaker than he thought. Leaning against the hospital wall a kind of joy descended upon Shahid. When the escort brought the wheel chair. Shahid gave him a beaming smile and asked him where he was from. The escort said that he was from Spain. Shahid clapped his hands and said that he always wanted to learn Spanish to read Garcia Lorca – a Spanish poet and dramatist.

Q4. Who is James Merill?

Ans: *James Merill is an American poet who radically changed Agha Shahid's poetic style. Under his influence, Shahid started experimenting with strict metrical pattern and verse forms.*

Q5 Pick out the elements of humour from the lesson.

Ans: Shahid, although aware of his approaching death, never gave up his amusing and friendly nature. Once at the Barcelona airport, he was stopped by a guard. This guard asked "What do you do?" Shahid said "I am a poet". "What were you doing in Spain? "Writing poetry." Shahid said. The guard felt irritated and asked whether he was carrying anything harmful, Shahid clapped his hand to his chest and cried, "Only my heart". Once he was leaving hospital after a surgical procedure. When the hospital escort brought him a wheelchair Shahid gave him a beaming smile and asked him where he was from. The man said that he was from Spain. Shahid clapped his hand and amusingly said at the top of his voice, "I always wanted to learn Spanish. Just to read Lorca." Once when an Indian student walked late into the Class in which Shahid was delivering a lecture at Baruch College, he greeted her with the cry; "Ah my little sub continental has arrived." Clasping his hands he feigned a swoon. '

Q6. What facilitated Ghosh to fulfill his pledge? How did it help him?

Ans: Amitav Ghosh had pledged to Agha Shahid that the latter would write about him after his death. Ghosh, in order to fulfill his promise, started keeping a record of every moment that he had spent with Shahid. He gathered all the information that he could about Shahid within a couple of months. All this helped Ghosh to fulfill his pledge.

Q7. How was Shahid's reputation among his students?

Ans: Shahid's students loved and respected him. At Baruch college in Manhattan, where Shahid delivered his last lecture, students printed a magazine and dedicated it to Shahid.

Q8. What does "The ghat of the only world" mean?

Ans: Ghat is a Hindi word which means the place at a river bank from where boats sail off with passengers for the other banks. Here the ghat of only world is a symbol of man's life on his death and the Ghat is the bank (point of death) from which man sails off for the other World

PRAYER

Summary*: The poem, 'prayer' by Shair-e-Kashmir Mehjoor, is the Poet's evocative and emotional account of feelings addressed to God. The poet makes certain wishes before the almighty. He prays to God to lead him to the path of truth and pour on him the nectar of knowledge. He requests him to him from idleness and weakness. Being, a firm believer of God, the poet asks him to always keep him under his protection. The poet wants to sing a song that would bring people closer, fill their hearts with love and make the element of hatred vanish away. The poet has been waiting for God's bounty since long. He wants God to shower his mercy and blessings on him and awaken him with the awakening of the flower and of the day. The poet begs God not to subject him to trials as he is weak in form and substance poet does not bother if people betray or desert him but he can't bear any kind of separation of his Lord.*

Thinking about the text

Q1. Which way the poet implores his Lard to lead him to?

Ans: The poet implores to lead him to the path of truth.

Q2. Name the blessings the poet prays for:

Ans: The poet prays for:

1) The nectar of knowledge. 2) A heart full of passion, zest and hope.

3) Inspiring song of love. 4) The substance of humanity.

5) The cure from ills and pains.

Q3. What is the song that poet wants to sing?

Ans) The poet wants to sing songs that can infuse life into the dead. He wants to sing songs that can inspire people and fill their hearts with love, and make all hatred vanish away.

Q 4. The poem is in the form of prayer. Write a prayer you often pray.

Ans: ---------- self evaluative ----------

Q5. "Subject me not to trials, shame not my human form." Explain.

Ans: The poet, with a down to earth attitude, says that he has been a man only in form, not in substance. The humanity has been far from him. The poet prays to his Lord not to subject him to difficult tests in his life as his frailty might surface.

MIRACLES

Summary: *The poem Miracles written by Walt Whitman in the expression of artist's ability to transform mundane into magical. According to general view miracles are hard to believe and they happen very rarely. But Whitman in this poem presents to us all together a different point of view of miracles. He believes that miracles are not events that happen very rarely. For poet miracles occur every movement and everywhere. The poet sees nothing else around him but miracles. A thing of joy and beauty is a miracle for him. The creation of all people, animals, birds and all animate and inanimate things are all miracles for the poet. The setting of the sun and the rising of the new moon are the best examples of miracles. But people don't take them as miracles because these events happen quite often and people are used to them.*

Q1. The usual view of miracle is that it seldom happens. What does Walt Whitman think about miracles?

Ans. To Walt Whitman miracles do not happen rarely and unexpectedly. According to him miracles happen very often and everywhere. To him talking to someone with love is a miracle, the setting of the sun and the rising of the moon are miracles. A thing of joy is nothing but a miracle for the poet.

Q.2 When you read the poem, you notice that some miracles are from nature, others are connected with people and city-life. Make lists of these. Notice how Whitman moves from one to another.

Ans. The poet is surrounded with miracles everywhere he goes in the company of nature, with people or walking down a street in a metropolis. The poet sees miracles in people he talks to with love, in people he dines with and in people sitting opposite him in the subway train. He can see miracles in the city life also. He sees miracles in the streets of Manhattan city. He sees miracles even over the roofs of the houses. And when in a pastoral setting he can see miracles all around. The trees, the honey bees moving around their hives, the animals feeding in the field, the beauty of the sunset and that of the new moon the silent and bright stars are all miracles to the poet. Though all these miracles are unique and distinct in

their identity and happen in their own settings and occasions, the poet does not face any difficulty in moving from one to another.

Q.3 What do the lines about Manhattan and the subway car tell us about Whitman's feeling for people?

Ans: These lines show that the poet loves people from all walks of life and belongings of the different social strata. Whether they are from a big city or from country sides, he has no. malice towards them. He finds as many miracles in the streets of Manhattan as he finds in the lap of nature. People dining with him and the strangers opposite him in the subway train are all miracles. All these things affirm that Whitman is a great lover of humanity.

Q4. Have you ever came across a miracle in your life? If yes, write an account of it in 150 words.

OR

Are you waiting for a miracle to happen in your life? Write about your feelings in 150 words.

Ans: ----------Self Evaluatory----------

Q5. What are the images used by the poet?

*Ans: **Imagery**: Imagery is the use of mental pictures by the use of typical words to signify all the objects and qualities of sense perceptions referred to in a poem or other work of literature. The images used by the poet are:*

(i) Walking through the streets of Manhattan.
(ii) Wading with naked feet along the beach
(iii) Looking at strangers opposite in a car
(iv) Dining with friends.
(v) Animals feeding in the fields.
(vi) Setting of the sun.
(vii) Rising of the new moon and shining of stars
(viii) Honey bees surrounding a hive

***Rhyme Scheme**: It is the sequence of rhyming words at the end of every line of a poem. Whitman used to write in free verse. This poem does not follow any regular rhyme scheme.*

***Free Verse**: Free verse (also called "open form") is a kind of poetry that does not follow any regular rhyme or rhythm.*

WHEN YOU ARE OLD

***Summary:** The poem "When you are old" is a lyric by W. B Yeats, which is an expression of Yeats intense emotions. The poem is addressed to Maud Gonne, the poet's beloved. The poet dramatizes his unrequited love by offering a future command for his beloved to take down his book of poems and read it when she becomes very old. He wants his beloved, after she has become 'old and grey and dull of sleep' to read his poems and think about his love for her. The poet leaves no stone unturned to convince his beloved that he loves her from the depths of his heart. The poet is not just fascinated by his beloved's physical charms and*

external beauty that forms the basis of the lover's passion. The poet's love is above all these parameters. Thus one could genuinely find an elegance of spirituality in this poem.

Exercise

Q1. How is the journey from youth to old age described in the poem?

Ans: The journey from youth to old age has been described a sad one. Youth is the time of beauty, joy and strength. It is the time when one has all the charms and graces. But as we grow old, we become frail. The hair turns grey. All the liveliness and youthful energy vanishes. We feel sleepy and tired all the time. We lose our physical strength and beauty. The deep and dark eyes lose their luster. The old age is full of sorrows. We are left in the lurch by our false admirers. Then we are left alone and the bitterness of life dawns upon us.

Q2. What does the phrase 'full of sleep' mean?

Ans: The phrase 'full of sleep' is a symbol of old age. It means being drowsy and listless all the time. In our old age, we always feel sleepy and tired. The agility of youth remains no longer with us. Life becomes monotonous as we wish to keep sitting down.

Q3. How is the poet's love different from those who also loved his beloved?

Ans: The poet's love is different from others who loved his beloved. The others loved her physical charm and outward appearance. Their love ended as soon as she lost her physical charm/grace. But the poet loves his beloved from the bottom of his heart. His love for her is sincere. He is not just fascinated by her physical charms; but his love is above all these parameters. He loves the holy soul within her. Thus his love is spiritual.

Q4. What is Maud Gonne reminded of in the poem?

Ans: She is reminded that she will realize the worth of the poet's love for her when she becomes old. She will then realize that those who loved her in her youth for physical charms have forsaken her completely. She will then feel sad for the poet whose love she had not requited. Also she is reminded of her youthful beauty when she possessed grace and beauty. Her eyes had an enchantment in them. She is also reminded that she carried a pious soul behind her physical charms.

Q5. 'But one man loved the pilgrim soul in you'. Explain.

Ans: The poet reminds her beloved that there were many who loved her when she was young and beautiful. They loved her outward appearance. Their love was selfish which could not be called love, but lust. The poet tells his beloved that she will realize in her old age the true quality of his love. He loved the pilgrim soul in her. In other words, the poet's love was spiritual in nature. He would love her constantly.

Q6. Write a short paragraph on the emotions portrayed in the poem.

Ans*: The poem 'When you are old' is an emotional outburst of the speaker - the poet. The poet has felt sad for not getting his love responded by his beloved. The whole poem is pervaded with melancholy, and it arouses the feeling of pathos. The poet contrasts two kinds of love in the poem. The love based on mere beauty is superficial love and it disappears when the beloved becomes old and grey. But the love of soul i.e. true love remains constant and never changes. The poet expresses the quality of his love for his beloved. It is sincere and from the bottom of his heart. She will realize it when she grows old. Lovers of her physical charm shall leave her. Then she will realize that it was only the poet who loved her*

soul. Thus, the poet leaves no stone unturned to convince his beloved that he loves her from the depths of his heart.

Q7. Discuss the 'image' used in the poem: 'When you are old'.

Ans: The poem has been made rich with a number of images. The poem begins with the building up of the image of a lady in old age. She is nodding by the fire. Another image is that of a young and beautiful girl with beautiful eyes and glad grace. The poet has also created an image of fading nature of love. The old lady 'bending down beside the glowing bars' is another image. Likewise 'crowd of stars' is one more image created by the poet.'

SPEAK UP

Summary*: The poem, Speak up, written by Faiz Ahmad Faiz, is the poet's artistic way of encouraging the poor Indians succumbing under British oppression. The poem is addressed to those people who lived a life of fear under the British rule. The poet encourages the people to speak up against oppression. The poet says that the people have lips that are their own. They have soul that is still their own. They have an upright body that is also their own. So they should stand against the colonial oppression. And they should speak boldly against the British rule. Only then they can break the fetters of slavery. Before the time will run out and their body and mind will fade away they should summon up their courage to stand against the cruel.*

Q1. The poet instigates the reader to speak up. Why does he do so?

Ans: The poet addresses the people under the yoke of colonial oppression. The poet encourages them to be bold enough to give vent to their resentment against the cruel British rule.

Q2. The poet addresses the reader to come up with the truth. How does he do so?

Ans: The poet wants the reader to have an unwavering faith in truth "for truth is not yet dead". Faiz wants the reader to stand for truth and speak for it.

Q3. How will the chains break?

Ans: All it needs to break the chains is considerable courage and manliness. The chains will break if people refuse to live in them. The chains of oppression will break if people unite and revolt courageously against the cruel rulers.

Q4. Why does the poet urge the reader to speak up now*?*

Ans: The poet urges the reader to speak up now because he feels it is the proper time to so. As the struggle against the British rule is gaining momentum, people should take advantage of the moment and make the revolt strong enough to make the British flee.

Q5. Do you think "Speak up" is an effort of the poet to give voice to the voiceless? How?

Ans: Yes, the poet wants to give voice to the voiceless. The poet advises the people who are too oppressed to speak up. The poet wants the people to shun all fear and be bold. The poet wants them to realize their potential and right to freedom. So, they must speak up and say what they have to say.

Learning about the literary devices

Metapho*r: A thing considered as representative of some other thing.*

Q1. What are the metaphors used in the poem?
Ans: The poet uses smithy, the oven, the flames, the padlocks and the fetters as metaphors to describe the struggle for freedom.
Q2. What images does the poet draw from the blacksmith's shop?
Ans: The poet draws very powerful images of a "red oven" and "fierce flames" from the blacksmith's shop to represent the anti-colonial revolution. The images of the melting of old useless things and molding it into something new and useful flash before our mind's eye.

SNOWDROP

Summary: *The poem is written by Edward James Hughes. In this poem the poet describes in a few words a very tough and cruel image of nature. He creates an atmosphere of a hard winter and uses images from nature to portray the toughness and brutality that a severe winter brings. The poet describes in a few words the way the winter has reduced the horizon of many creatures. He says the world has shrunk and many outdoor creatures are on the verge of death. They no longer scurry or fly as they used to.*

Textual Questions
Q1. How has nature shrunk the globe?
Ans. Nature has shrunk the globe by the toughness and brutality that a severe winter brings. It has restricted the movement of all animals. They no longer scurry or fly as they used to. winter has reduced their horizon. They live in the fear of death.

Q2. What has dulled the mouse's heart?
Ans: It is the severe winter that has dulled the mouse's heart. The mouse is generally a very lively creature. It remains very alert and skipping about. But now due to the intense cold, it is feeling dull at heart. All its sportive activities have come to an end.
Q3. What sufferings do the animals undergo in the poem?
Ans. Animals feel very dull in winter. All their sportiveness comes to an end. They find no place of shelter. They see death all around them. They remain in the fear that death could come to them also any time. They seem to have been cast in a mould of brass.
Q4. Write a short note of 50-100 words on Hughes' view of nature.
Ans. Hughes' attitude to nature distinguishes him from almost all other poets. He presents nature as very cruel and heartless. It remains indifferent to the sufferings of poor little creatures. it goes on with its deadly course without caring what happens to them. It takes away their sportiveness and makes them dull. But by giving the example snowdrop the poet gives a message

also. In nature, only those will survive who have the courage and determination to continue to live. The snowdrop pushes its stem up even through the thick layers of snow. Thus it is able to bloom even in the intense cold.
Q5. 'Her pale head heavy as metal'. Explain.
Ans: Here the poet refers to the snowdrop flower. Its head is quite heavy. It keeps hanging down. It seems to be made of heavy metal. But this heaviness and hardness of head is the

secret of its strength. It is the secret of its survival even in the intense cold. This strength enables it to push its stem up even through the thick layers of snow. Thus, to the poet, the snowdrop is a symbol of the survival of the fittest in nature.

Q.6 Pick out image from the poem:

Ans. Nature = Mouse, Weasel, Crow, Snowdrop / Universe = Globe, Stars, Outer darkness / Metal = brass.

Q7. 'Weasel and crow, as if molded in brass'. Explain the simile used by the poet.

Ans: The simile expresses the brutality of winter. The bitter cold has restricted the movement of a Weasel and a crow. They have lost their usual sportiveness. They are frozen with cold. This frozen stillness of a weasel and a crow has been compared to brass.

Q8. Trace two lines in which 'ou' sound is used. Also write down the words with 'ou' sound.

Ans. The two lines having 'ou' sound are:
(i) Round the mouse's dulled wintering heart.
(ii) Move through an outer darkness. .
Words with the 'ou' sound are: round, mouse, outer.

***Q9. Pick out two examples of alliteration from the poem**.*

Ans. The two examples of alliteration are
(i) Wintering heat weasel and crow
(ii) Her pale head heavy as metal,

MY MOTHER AT SIXTY SIX

***Summary:** The poem 'My Mother At Sixty -Six' written by Kamla Das is a short poem, without a full stop; the poem is like a long sentence punctuated by commas but overflowing with thought process. The poem revolves around the theme of aging and the fear that adheres to its loss and separation. It is a sentimental account of the mother's approaching death through the love of a daughter. The daughter is deeply disturbed with the thought of imagining life without her mother. The poet is on her way to the airport at Cochin with her mother sitting beside her. Her mother looks pale which makes the daughter realize about the numbered days of her mother. Relationship is the nucleus of the poem and its love that creates an unfading relationship between two people. The silent agony of the poem reaches its climax when the airport passengers are requested to filter through the security checkup and a helpless mother with a wrenching heart and a swelling emotion, bids a helpless goodbye to her helpless daughter. The poet has used many poetic devices to put across her ideas.*

***Textual Questions**:*

Q1. How does the poet describe her mother in the poem?

Ans: The poet says that her mother is very weak. She has grown as pale as a dead body. Her weakness makes the poet realize about the numbered days of her mother.

Q2. Why does the poet look outside? What activities does the poet see outside the car window?

Ans. The poet's mind is filled with the painful thoughts of her mother. She looks outside to do away with these thoughts. Outside, she sees a world full of life and activity. She sees trees that seem to be running fast. Then she sees children running joyfully out of their homes. The poet uses these images for the purpose of contrast i.e. to show the declining days of her mother.

Q3. Why are the young trees in the poem described as spiriting?

Ans: The poet is on her way to the Cochin airport in a car. She looks outside and finds the trees coming fast towards her. They seem to be running fast, but in reality it is only the car that is running.

Q4. Why is the mother compared to the late winter's moon?

Ans: Old age is the last phase of human life just as winter is the last phase of the year. In old age a man grows pale like death, just as the moon in late winter looks pale white. This image has been used to indicate that the days of life of poet's mother are numbered. She is at the verge of death.

Q5. What childhood, fears do you think the poet is referring to in the poem 'My Mother at Sixty Six?

Ans. A child never wants to part with its mother. It does not want to lose sight of its mother even for a moment. It is these childhood fears that filled the Poet's heart at the moment of seeing her mother in her old age. She feared that she would never again see the face of her mother. The poet is deeply disturbed with the thought of imaging her without her mother.

Q6. What does Kamala Das do after the security check up? What does she notice?

Ans. After the security check up, the poet again looks at her mother who is a few yards away. She looks at her wan, pale face. She notices that her mother has stepped into the last phase of her life.

Q7. But all said was, see you soon Amma; all I did was smile and smile and smile..... (a) What does the poet actually feel at this moment?

Ans. She feels that she would perhaps never see her mother again. She smiles to hide her pain. It is merely to reassure her mother.

(b) Why did the poet say 'see you soon Amma? What does the poet actually mean by 'smile and smile and smile .....?

Ans: The words spoken by the poet signify some hope to see her mother again. In fact, these words were just a formality. The poet smiled to give impression that she would certainly see her mother again. It was a kind of moral support and an assurance to meet her again very soon. It was a way to hide her pain that the poet felt on the thought of her mother's death.

Q.8 (a) Where was the poet driving to? Who was sitting beside her?

Ans: She was driving to the Cochin airport. Her mother was sitting beside her.

(b) What did the poet notice about the mother?

Ans: The poet noticed that her mother looked as pale as death. She looked very old. She was dozing with her mouth open. .

(c) Why did the mother's face look like that of corpse?

Ans: Because it was colourless, lifeless and pale like that of a corpse.

Q9. Discuss mother-daughter relationship as described in the poem.

Ans. Relationship is the nucleus of the poem. The poem expresses the feelings of a daughter who looks at the pale, ashen, corpse like face of her mother and feels troubled. The sight of her old mother's pale face arouses her childhood fears. The fear is that with aging comes decay and death. She does not want to lose her mother. She puts on a brave face and assures her through her smiling that they will meet again. Thus the poem is an example of inexpressible and indefinable love a daughter has for a mother who is deeply disturbed with the thought of imagining life without her mother.

Q10. My mother at sixty-six is an emotional account of the poet towards the numbered days of her mother. Discuss.

Ans. The poem is an emotional account of the poet's fear about the numbered days of her mother. The poem overflows with the thought process. It revolves round the theme of aging. The poet feels deeply disturbed upon seeing the weak, pale and corpses like face of her mother. She realizes that her days are numbered. But she does not want to lose her. The thought of imagining life without her is very painful. However, she composes herself and tries to hide her pain. She bids adieu to her mother with the hope to see her soon. Thus, we can safely say that the poem is a sentimental account of the mother's approaching death through the lens of a daughter.

QI1. The poet compares her mother to many things. Pick out two similes which reinforce this comparison.

Ans. The two similes are:

(i) Her face ashen like that of a corpse

(ii) Wan, pale as a late winter's moon

The poet describes the face of her mother 'ashen' like a dead body. She was like a withered moon of the late winter.

Q12. What image does the poet use to describe death in the poem?

Ans. The poet uses the image of 'ashen face of a corpse' to describe the death in the poem.

Q13. Cite an example of one device of contrast that the poet uses in the poem.

Ans. The poet gives the image of 'merry children spilling out their homes'. This image helps to bring out the contrast between childhood and old age. While childhood is a period of merry-making, old age is a period of decay and sadness. '

Q14. 'smile and smile and smile' is a poetic device. What is it called?

Ans. It is called repetition. Sometimes the words are repeated to give musical effect.

AN EVENING WET WITH RAIN

Summary*: The poet here reproduces the atmosphere of an evening wet with rain. He is all alone in the lane and here is perfect silence. The poet is in a depressed state of mind. He is extremely tired and wary. He has lost all hope in the evening of his life. Memories of childhood begin to flood the poet's mind. He is reminded of the time when he used to stand in the courtyard, listening to the sound of cymbals. But now those are the things of the past. The poet regrets that he cannot call back the times that are past and gone. Now the only*

things the poet can hope for is sleep in the lap of night (i.e. death). The poet now knows his days are numbered. so he has left himself to his fate. The poet draws numerous images from nature to heighten the effect of silence and solitude.

Q1. What are the memories that the poet talks about in the poem?

Ans: *The poet recalls the childhood days which he cherished. He remembers the childhood day when he used to sit in his courtyard. A cool breeze would be blowing. The waves of air would ring the sound of cymbals to his ears. This would give him extreme Joy.*

Q2. What kind of atmosphere is created in the poem?

Ans: The atmosphere created in the poem is that of melancholy. It is marked by a note of sadness, helplessness, regret and depression. The poet is in a desperate mood. He is quite unaware of his destination. He is in a depressed state of mind, wandering in the deserted and empty lane wet with rain.

Q3. What makes the poet tired?

Ans) The hopelessness has made the poet tired. The poet is extremely depressed. He is in the evening of life. No hope has been left for him. It has filled his old age with darkness. Clouds of depression have gathered in his mind. All this makes him tired.

Q4. What has darkened the evening of poet's life?

Ans: Loss of hope has darkened the evening of poet's life. A pall of gloom has descended on him and the clouds of despair and hopelessness have gathered in his mind. In this stage of his life, he finds no way out.

Q5. Discuss the poet's regret in the poem?

Ans: The poet regrets that the days gone by do not return. The poet recalls the days" gone by do not return. The poet recalls the childhood days. Those were the days when life was ill joy for him. In contrast, the present life of the poet is all despair. The mental weariness and physical exertions are the characteristics of his present life. There is no joy or hope left for him. The poet regrets that he cannot call back the times that are past and gone.

Q6. Comment on the image used by the poet in the poem.

Ans: The poet is a great pictorial artist. He has given us a vivid picture of sights and sounds on an evening wet with rain. We can see clearly in our mind's eye wet doors, windows and awnings. We can see the leaves stirring with the cool breeze. We can see water seeping through the poet's shoes and also the wet collar of his coat. Each description given by the poet springs alive before our imagination. We can visualize clearly the child poet standing alone in his courtyard and listening to the sweet sound of cymbals.

THE TALE OF THE CUSTARD DRAGON

Summary: *The poem is a ballad wherein the poet, Ogden Nash, ridicules persons who pose to be very brave and courageous, but in times of crisis prove big cowards. On the other hand, those who make no proud professions and are looked down upon as lazy and coward prove their worth, when the occasion demands it. They turn out to be heroic and courageous. A lady named Belinda had four pets — Ink (a black kitten), Blink (a grey mouse), Mustard (a yellow dog) and Custard (a little dragon). While Ink, Blink and Mustard boasted about their bravery, Custard remained content in his cage. Ink, Blink and Mustard made a mockery of*

Custard and called him a coward. Belinda, too, kept Custard in neglect and gave all care to the other three. On day a robber broke into Belinda's house. Ink, Blink and Mustard ran away in fear and hide themselves. But Custard faced the robber bravely and killed him. Belinda and her three pets danced with joy. But soon all of them started again their usual boasting, while Custard never boasted about his strength and was content in his cage.

Textual questions

Q1. Who are the characters in this poem? List them with their pet names.

Ans: The characters in this poem are (i) Little black kitten with pet name as Ink (ii) Little grey mouse called as Blink (iii) Little yellow dog named Mustard (iv) the dragon with the pet name Custard.

Q2. Why did Custard cry for a nice safe cage?

Ans: Being a coward, the dragon (Custard) always cried for a cage. All other animals called him
a cowardly dragon and laughed at him. He doesn't like it. So he cried for a nice safe cage.

Q3. Why the dragon is called cowardly dragon?

Ans: The dragon is called 'cowardly dragon' because he lacks courage. He is lazy and always wants to be in a nice safe cage.

Q4. "Belinda Tickled him, she tickled him unmerciful". Why?

Ans: Belinda thought that Custard (the dragon) Was very coward. He never wanted to be out of his cage. Belinda made a mockery of him. She teased him and all other animals laughed at him. Teasing Custard gave them pleasure when he behaved childishly.

Q5. Do you find the poem a serious or funny poem? Give reasons in support of your' answer?

Ans: The poem "The Tale of Custard the Dragon" is a humorous poem. It gives us a very interesting story of Custard the dragon who was teased for being a coward but who later proved brave and turned out t to be courageous by saving the life of those who made him a butt of ridicule. There is a lot of fun, humour and entertainment in the story.

Q.6)- What is the rhyme scheme of the poem?

Ans: The poem is in the form of quatrains. The rhyme scheme of each quatrain is aa bb.

Q7. Pick out the lines from the poem that contains similes?

Ans: The lines which contain similes are:

(1) The little yellow dog was sharp as Mustard
(2) Mouth like a fireplace.
(3) Belinda was a brave as a barrel full of bears.
(4) Mustard was a brave as a tiger in a rage.
(5) ....snorting like an engine.
(6) .....like irons in a dungeon.
(7) .....like a robin at a worm.

Q8: What images does the poet use in the poem?

Ans: The images used in the poem are:

(1) Chimney for a nose.
(2) Ink and Blink chased lions down the stairs.

(3) image of a pirate.
(4) Image of an engine.
(5) Eating of pirate by the dragon

Q9. Which line/stanza is used as a refrain in the poem?

Ans: Refrain means a securing line or a group of lines or a phrase especially at the end of each stanza. Here in this poem the last stanza has been used as a refrain.'

Last Lesson of the Afternoon

***Summary**: The poem expresses the bitter feelings of a teacher. The teacher expresses his deep concern over the uselessness of his efforts to teach the students who refuse to learn and who have no interest in acquiring knowledge. They are indifferent, inattentive and totally disinterested. So the teacher has lost all interest in his teaching. The only thing he can do is to wait for the last bell to go. The teacher compares himself to a hunter and his students to hounds. If the hounds are travelling to hunt, what can the poor hunter do? Similarly if the students are unrolling to hunt for knowledge, what can the poor teacher do? Thus, the poem conveys the message that teaching-learning can never be one way affair. There can be no teaching if the learner is not willing to learn. Here one is reminded of a proverb: you can take the horse to the pond but you cannot make it drink.*

Textual Questions

Q1. What is the tone in the opening line of the poem?

Ans: The tone in the opening line of the poem is that of tiredness boredom and weariness. The speaker of the poem who happens to be teachers is fed up with teaching his unruly students. He has been teaching them for a long time now but is disillusioned because of their lack of interest to learn. This gives him a feeling of weariness.

Q2. Who is the speaker of the poem?

Ans: The speaker of the poem is a teacher.

Q3. What are the pupils regarded as? Why has the teacher failed to 'haul them and urge them' anymore?

Ans: The pupils are regarded as a pack of unruly hounds who are trying to get free from the chains which they are tied. The teacher has failed to 'haul them and urge them, because they are not interested in acquiring knowledge. They always try to break loose from their chains of the classroom. They are totally indifferent, inattentive and disinterested towards their studies. They harbour a kind of hatred for gaining knowledge. That is why the teacher has failed to persuade or coax them to learn.

Q4. Which words and phrases in stanza 2 convey the mood of the speaker?

Ans: The words and phrases that convey the mood of the speaker are:

(i) No longer now can I endure the brunt.
(ii) I am sick.

Q5. Why doesn't the speaker want to consume his fuel anymore?

Ans: The speaker, a teacher, realizes that he has been wasting his energy so far on a fruitless exercise. He has failed to inspire his pupils who do not want to chase knowledge. Now he does not want to do so anymore. He wants to keep his energy for himself and to utilize it

portably. He does not want to consume it for the students who are unwilling to acquire knowledge.

Q6. What do you think 'take the toll of their insults in punishment' means?

Ans: This is a metaphor used by the poet here. 'toll' is a kind of tax to be paid for using a road. The teacher in the poem projects himself as a road on which the students run their insults. Arid for ferrying these insults, they have to pay the toll in the form of punishments. In other words, the teacher punishes the students for their cold indifference towards their studies.

Q7. Why does the teacher feel that his teaching and pupils' learning are both purposeless? Pick out words and phrases which show that he shares his pupils' indifference to their work.

Ans: The teacher finds his students utterly indifferent towards leaning. His efforts have not borne fruits. He has failed to inspire them. So he loses interest in teaching also. He thinks that his teaching and the pupil's learning are both purposeless as he can no longer haul them and urge them anymore.

The following words and phrases show that the teacher shares his pupils' indifference to their work:

(i) I will not waste my soul and strength. %
(ii) What do I care for.
(m) What is the point of their teaching of mine.
(iv) What does it matter to me.
(v) I do not and will not

Q8. Do you find any connection between the beginning and the ending of the poem?

Ans: In the beginning there is the tone of boredom and weariness on the part of the teacher. He is sick of his pupils as they show disinterest towards learning. He has failed to inspire them. By the end of the poem, the poet has resolved not to waste his time and energy on a useless exercise. He will no longer care for the teaching of his pupils. S0 he eagerly waits for the bell to go. Thus, there is a connection between the beginning and the ending of the poem.

Q9. After reading this poem, write an account of your opinion about this poem.

Ans: The poem records the feelings of a teacher. He is sick of his students. They are not interested in learning . they are wild, uncontrolled and in disciplined. Isle has failed to inspire them. A teacher is supposed to give his best to his students. But there is another point to be considered. Teaching can never be one-way affair. Effective and successful teaching can take place only when the students are willing to learn. A student will learn if and only if he is interested to learn. What will the poor teacher do if the student is not willing to learn? We can take a horse to the pond but we cannot make it drink. So in a situation when the students have no interest in learning, a teacher prefers to while away the hours in the school. And this is what the teacher is the poem decides to do. He decides to keep his energy for himself and use it in his own way. Thus, the indifference and lack of interest on the part of pupils darkens his spirit. So, he decides to discontinue his efforts and waits anxiously for the bell to go. In this way, the poet has beautifully portrayed the bitter feelings of a teacher at the thanklessness of his work.

Q10. What is the metaphor used by the poet in stanza 1?

Ans: In stanza 1 the poet has used the metaphor of hunting. The teacher has been compared to a hunter and his students have been compared to hounds. But here the hounds are unruly and refuse to follow the direction of the hunter. Every time they tug the leash and try to be free.

Q11. Identify the metaphor in stanza 3

Ans: There are two metaphors in stanza 3

(i) Here the poet has used the metaphor taken from metallurgy. The energy of the teacher is compared to the fuel. T re teacher uses the fuel of his life to strengthen his will power and to overcome the dross of indifference of the students.

(ii) The metaphor used by the poet is that of toll to describe how the teacher deals with his unruly students. Toll is a kind of tax to be paid for using a road on which students ferry their insults. And for ferrying these insults, they have to pay the toll in the form of punishments. In other words students are being punished for their mistakes.

I EXPLAIN A FEW THINGS

Summary*: 'The poem is a lamentation on Spanish civil war in which the noted poets Federico Garcia Lorca and Rafael Albert were killed. The poet lived in Madrid, Spanish capital that symbolized prosperity, beauty and promising future. But the civil war destroyed it. Blood gushed out where from flowers used to burst/sprout. The poet describes despair and devastation/tyranny and vandalism through the symbols of jackals, bandits, stones, vipers, fire, blood and bullets. But the poem ends with a note of hope. The poet hopes that there would be an uprising in Spain. The common people would rise up in arms against those perpetrators of bloodshed and have a befitting revenge. In the end, the poet questions his own attitude by not composing poems about dreams and beauties of his homeland. But he clarifies that how he could do it when there was blood everywhere in the streets of Madrid, the blood of Spain's posterity, blood of children.*

Textual questions .

Q1. Why does the poet use the title 'I explain a few things'?

Ans: The poet used to write poems about dreams, nature beauty, fantastic themes, the earth etc. But since the Spanish civil war, he is a changed man. He no longer writes the poems about the sweet dreams. That has filled him with disgust. He laments the destruction caused by the war. The bloodshed of children in Spanish civil war has filled his heart with grief. As a consequence, he has changed the theme of his poetry. It is in this poem 'I Explain a few Things' that the poet explains why he has change theme of his poems. That is why he has used the title 'I Explain a few Things'. Here in this poem, the poet clarifies that how could he write (compose) poems about dreams and beauties of his homeland when there was blood everywhere in the streets of Madrid, the blood of children.

Q2. What are the memories that the poet talks about in the poem?

Ans: The poet recalls the time when he lived in Spain. The poet lived in Madrid - the capital

city of Spain in 21 house called 'the house of flowers' because it was full of geraniums. The poet recalls the time when peace prevailed in Spain. It was a symbol of prosperity, beauty and a promising future. He also recalls the poets of Spain he had made friends with. During the times of peace, there used to be great hustle and bustle in the markets of Spain. The land was fertile and one could see vast stretches of bumper crop. The city hummed with activity all the time. It was surrounded with rich natural beauty. All these things flash across his mind.

Q3. What happened later and why?

Ans: The peaceful period in Spain did not last long. The peace and prosperity gave a way to bloodshed one day. The whole Spain was burnt. A civil war broke out in Spain. The whole Spain was destroyed. Everything was engulfed by the war. The hooligans and violent criminals massacred children. They robbed people and killed them. They were bandits who had the support of religious friars. The bloody revolutionaries of Spain slaughtered people. Among those killed ones, there were his (the poet's) friends also. The heartless revolutionaries drowned the whole of Spain in blood. They were blind in their pride and stabbed people to death. They were traitors. Thus, the peaceful life of Spain was spoiled.

Q4: Why doesn't the poet write the poetry of sweet dreams?

Ans: The terrible bloodshed during the Spanish civil war has changed the mindset of the poet. It is haunting his mind. He is terribly shocked by the mass killing of people including children. His heart is heavy with grief. He has changed the theme of his poems. He no longer writes the poems about the sweet dreams and natural beauty That he used to write. The poet makes it clear himself that how he can write poems about set dreams when blood is gushing out everywhere in the streets of Spain. It is the blood of innocent people and children. The poet is simply shocked by all this bloodshed and therefore, has stopped writing poems on the beauty of nature.

Q-5,) Explain the lines: My house was named.

The house of flowers.....moment blood.

Ans: In these lines the poet gives description of the place where he used to live in Madrid, the capital of Spain. It was a charming place. His house was named the house of flowers as there geraniums blooming everywhere. It was a beautiful house with dogs and children flocking everywhere. The poet recalls some of his friends who were killed in the civil war. They included poets like Rafael, Raul and Federico Garcia Lorca. All these poets were lying dead under the earth. The poet invokes their names to seek confirmation about what he has said about his house. The poet's house was a symbol of charm where flowers grew so high. The building of his house was marvelous with balconies and it had a weather-vane at the top. There were vast stretches of bumper crop in Spain extending upto sea. All this symbolizes the peace and prosperity of Spain. But one day the peaceful life of Spain was spoiled when suddenly big fires broke out. These fires of civil war engulfed large number of men. From that moment it was fire and gunpowder exploding everywhere. From that moment blood is seen in the streets of Spain.

Q6. How has the civil war affected Spain?

Ans: The civil war has caused utter destruction in Spain. It has changed its face. The fertile country has turned into a fire place. It has become a graveyard. The blood is gushing out in

the streets. The peaceful days have gone. The bandits, vipers, jackals have taken the reigns of the country. Spain has become a battle field after the civil war. Everywhere one can see blood in the streets. Civil war has changed Spain from a land of flowers into a land of dead bodies. Many noted poets have been assassinated. The posterity of Spain has been slaughtered.

Q7. Explain the journey of the poet from happiness to agony?

Ans: The poet undergoes a change of mood from happiness to agony. In the beginning of the poem, he seems to be very delighted with what Spain symbolizes. It is the symbol of peace, prosperity and life. The poet is happy with the hustle and bustle of life in Spain. The poet is joyous/pleased to live with his friends in Spain. But all his hope and joy gives place to agony and grief as soon as he recalls the infamous civil war. The poet is pained to see the bloodshed of innocent masses. He is agonized to watch to be a witness of colossal destruction of property by the bandits. The poet is so heavy hearted, that he no longer writes the poems about sweet dreams or natural beauty of his native land.

Q8. What is the mood the poet in the poem? How do you feel after reading this poem?

Ans: The poet is very sad. He feels sorry for people in Spain. He laments the loss of life and property in Spain. Being a witness to the destruction caused by the civil war, the poet experiences it as a nightmare. He is moved by the assassination of posterity of Spain -the children. The poet is utterly agonized to see Spain caught in the flames. After reading the poem, we share the grief of the poet. Our eyes are full of tears. One can hardly believe that man, the crown of creation, can turn into a violent beast and callous to wreak havoc. Verily, the poem gives us a shock.

Q9. What are the symbols used by the poet? What do they symbolize?

Ans: There are plenty of symbols and unique phrases in the poem which enrich it. In this instance, the poet has used the words like 'bells', clocks, trees' and the phrase 'a sea of leather'. All these expressions symbolize the charm and glory of Spain. It also indicates that Spain hummed with life and activity. Again, 'the light of June drowned flowers in your mouth' and 'the frenzied ivory of potatoes & tomatoes symbolize the vitality and fertility of Spanish soil. These expressions can also be taken to mean peace and happiness. In order to describe the bloody revolution, the poet has used the symbols of jackals, stooge and vipers. Similarly, the poet describes despair and devastation/tyranny through the symbols of blood and bullets.

Q10. Pick out the images used by the poet to describe peace and war in poem.

(OR)

Discuss the 'imagery' of the poem.

Ans: The poem 'I explain a few things' by Pablo Neruda is rich in the imagery. The poet has created the images both of peace and war.

The images of peace used by the poet are:

(i) Everywhere geraniums sprouted (ii) The endless expanse of land with potatoes and tomatoes growing on it.

The images of war used by the poet are: Bonfire leaping from the earth devouring human beings, bandits, moors, thugs, jackals, vipers and the blood in the streets. "

THE NECKLACE

Q1. The course of the Loisels' life changed due to the necklace comment.

Ans: The necklace, unmistakably, changed the course of the Loisels' life. It was the necklace that mined them. The Loisel had to borrow money at very high rate of interest. In order to compensate the loss, Mr. Loisel worked overtime for some merchants. To economize their meager income they sent away the maid. They changed their lodgings and rented some rooms in an attic. Now Matilda has to do the odious work of a kitchen. She washed the dishes, dishcloths and soiled linen which she hung on the line to dry. She went to the grocer's the butcher's and the fruiterer's, with her basket on her arm haggling to the last sun of her money. Matilda's youthful beauty and charm has gone. She was no more having grace and beauty of earlier days. She looked older them her years. She had become a strong and crude woman of a poor household. Her hair was badly dressed and her skirts were awry. She talked in a loud rude tone like an uncivilized person. In short, the way of living of the

Loisels was completely altered due to the loss of the necklace. Their life was miserable and it lasted for ten long years.

Q2. What was the cause of Matilda's ruin? How could she have avoided it?

Ans. Matilda belonged to a poor family. But she always longed for things of luxury. She always imagined these things. She had big dreams but no means to realize those dreams. Matilda never lived down to the earth. She always thought about the life style of the rich without considering the fact that she could not afford it. That was the cause of her unhappiness as well as ruin. She could have avoided the ruin if she had remained contented with what life had given her. She should have known that "one should cut one's coat according to one's cloth". Thus she could have avoided her ruin.

Q3. What would have happened to Matilda if she had confessed to her friend that she had lost her necklace?

Ans. If Matilda had confessed the loss, she would have been saved from the ruin. Matilda should have frankly confessed the loss. Then, if her friend had asked for the replacement of the necklace, she could have easily paid for it. There is another possibility that Madame Frostier would not have minded it at all as it was worth a meager amount of 500 francs. However, human nature is very weak. At times we lose the trust of our friends. In this perspective, if Matilda had confessed to her friend that she lost her necklace. The latter might have through that she was robber and in this way. she would have lose even her dignity.

Q4. If you are caught in a situation like this, how will you deal with it?

Ans: If I were caught in a situation like this, l would have gone immediately to Madam Frostier and told her honestly all that happened. I would have asked her at the very start what its cost was. Had the cost been actually too much, there would have been no looking back, something had got to be done. Then as it would have turned out to be a prestige point,

the challenge was to be accepted. So, in this way, I would not have lost my dignity, and also much of the trouble could have been saved.
Moreover, Madame Frostier would have been glad as everything could have possibly been avoided to her entire satisfaction.

Q.5 Draw a character sketch of 'Matilda'.

Ans: Matilda was a young beautiful woman. She was born in a poor family. She always wished to have things of luxury. She wanted to move in rich society. But she was to marry a small clerk. She was not happy with him. She had big dreams but no means to realize those dreams, which was the cause of her unhappiness. However, Matilda was cooperative and hardworking by nature. She was a courageous woman. She worked shoulder to shoulder with her husband in adversity. Though she had always wished to married a man either rich or distinguished but she married petty clerk. She, however, soon learnt to cope up with what she had got in order to save the prestige of the family, she sacrificed her own way of living. She, like a brave soldier to help her husband paid the debt. Thus, we admire her courage and the support she extended to her husband.

Additional Questions

Q6. Draw character sketch of Mr. Loisel.

Ans: Mr. Loisel was a petty clerk in the office of the Board of Education. But he was contented with his lot. He never cursed his luck. He was a loving husband. He loved his wife very much. He always tried to keep her happy. He would do anything for her pleasure. One day he brought her on an invitation to the Minister's ball. Matilda refused the invitation angrily. She said she had not suitable dress for the occasion. Loisel gave her all his savings for the new dress. When Matilda lost the borrowed necklace, Loisel had to borrow 18,000 francs to replace that necklace. He had to suffer a lot because of his wife. But he never got angry with her. It shows he was a loving husband. He was also very simple and courageous.

Q. 7 What is the theme of the story, "The Necklace"?

Ans. The story conveys a clear message that we should be content with what life gives us. Contentment gives peace of mind. It is the surest way to happiness. Our happiness does not depend upon the number of material things we possess, but it depends upon our capacity to limit our desire. Moreover, we should not cherish the dreams which we cannot realize. We should remember that one should cut one's coat according to one's cloth.

Q8. Comment on the ending of the story 'The Necklace'.

Ans: The end of the story is ironical. Matilda lost the borrowed necklace. Both Matilda and her husband were broken down by the loss. They were ruined. They were determined to get a new necklace as a substitution for the lost one. They worked from dawn to dusk to make good the loss. They changed their lodgings, borrowed money at a very high rate of interest and Mr. Loisel worked overtime for some merchants. They bought finally a necklace for thirty six thousand francs. But at the end, Mrs. Frostier told Matilda that her necklace was not worth over live thousand francs.

Writing work

Q1. What are the things that are important to you to make you happy in life?

Ans: Man is a machine of desires. His desires are countless. Every desire cannot be fulfilled. So the happiness lies in limiting our desires. We should remain contented with what life gives us and this gives us peace of mind. We should feel relaxed and satisfied with whatever we have. A contented man knows how to do without a thing he doesn't have or can't have. He never complains about his fate nor does he imagine things which he cannot afford to have. Thus, a contented person is the happiest man on the earth. Such a person surely wins divine happiness for himself.

BHOLI

Q1. For what unusual reason is Bholi sent to school?.

Ans: When tehsildar inaugurated the school in" the village, he urged Ramlal to send his daughters to school to set an example for others. But Ramlal's wife is against sending girls to school. She thinks that there is little chance for girls getting married who go to school. Bholi is mentally a retarded child. She lacks sense. She is not good looking. Her parents send her to school because they feel there is little chance of her getting married.

Q2. How does Bholi find her teacher different from other people?

Ans: - Bholi is a neglected child at home. She is not cared for at home as she is mentally retarded and has ugly black pockmarks on her face. They think her mere a burden. So they neglect her completely. The other children in the house make fun of her. But at school it is quite different. Bholi's teacher gives her all love and affection. She encourages her to speak. She tells her that one day Bholi will be able to speak like anyone else. She also tells her that one day she will became more learned than anyone else in the village. Then nobody will laugh at her. In this way Bholi finds her teacher very kind and sympathetic.

Q3. Why do Bholi's parents accept Bishamber's marriage proposal?

Ans: Bishamber is a rich man. He owns a big shop, a house and a lot of wealth. Bholi is a simpleton. She doesn't have sense. She is ugly too. She has pockmarks on her face. Her parents have apprehension that nobody will marry her because of her ugly look. When Bishamber proposes to marry her, Bholi's parents consider it a golden opportunity for her. They fear that if they don't accept Bishamber's proposal. she may remain unmarried all her life. Another reason for accepting the proposal is that Bishamber does not ask for any dowry.

Q4. The ending of the story is very dramatic. Do you think her decision not to marry Bishamber makes her an outcast /rebellious or is it an assertion of her being an individual and a woman of substance?

Ans: The ending of the story is unmistakably dramatic. Bholi's parents have been much worried about her marriage since her childhood because she has pockmarks all over her face. They think nobody will marry her. They send her to school for an unusual reason. A middle aged man. Bishamber proposes to marry Bholi. But at the time of marriage, Bishamber demands a dowry of five thousand rupees. Bholi's father places his turban at Bishamber's feet. But Bishamber is adamant.

Bholi refuses to marry Bishamber whom she calls a greedy and mean person. She decides to serve her parents in their old age. This shows that Bholi is a girl of great courage and confidence. She is not ready to suffer any disgrace or injustice. Thus, her refusal to marry Bishamber is an assertion of her being an individual and a woman of substance. Her teacher had changed here into a masterpiece of courage and confidence. She is not a 'dumb cow' anymore.

Q5. Bholi's real name is Sulekha. We are told this right at the beginning, but only in the last but one paragraph of the story is Bholi called Sulekha again. Why do you think she is called Sulekha at that point in the story?

Ans. Bholi's real name was Sulekha. When she was ten months old, she had fallen off the cot on her head and it had damaged some part of her brain. As a result, she remained a mentally backward child. That is why she was called Bholi, the simpleton. She was sent to school. At the school, the teacher showered her kindness and affection on her. She encouraged her. She filled her with confidence. Now she was no longer a girl who lacked sense. She was wise, confident, courageous and self respecting. That is why in the end of the story; she is referred to by her real name, Sulekha not Bholi, the simpleton.

Additional Questions

Q1. Character sketch of 'Bholi'.

Ans. Bholi's real name was Sulekha. As ill luck would have bi en it, she fell off the cot when she was only ten months old. it damaged a part of her brain. As a consequence, she was mentally retarded. She lacked sense, and hence came to be known as Bholi, the simpleton. At home the other children made a mock of her for stammering. As a result of it she talked very little. She felt scared. She was like a 'dumb cow'. She was completely neglected at home and, being very timid, she never revolted. But a dramatic change occurred in her alter she was sent to school. Because of the sympathetic and kind treatment of her teacher, her heart was filled with a new hope and a new life. She regained confidence and courage. She was no longer a 'dumb cow'. She was turned into a brave and bold woman. She was now a woman of substance. We see this when Bholi refuses to marry a mean and greedy person like Bishamber. She would no longer bear any disgrace or injustice. Thus, she came up to the expectations of her teacher.

Q2. Character sketch of Bholi 's parents.

Ans. Bholi's parents were well-to-do. In their household there was plenty to eat and drink. Ramlal was a revenue official. They took good care of their healthy children , but were very unkind to Bholi. Though they were anxious about Bholi's marriage, they never tried to provide her with such things which would have made her marriageable. They had lost hope in her. They never thought about the remedy to her ills. They never troubled themselves to encourage her and spoke kindly to her. Their ill-treatment made her life more miserable. If they had loved and encouraged Bholi, the condition could have been different. They were old-fashioned and blind followers of tradition. They thought that nobody marries the girls

who have been to school. They had not the courage to stand up against bad customs of the society.

Q3. Character sketch of 'Bishamber'.

Ans. Bishamber was a middle aged grocer. He walked with a limp. He was a well to do man. He was a widower and had grown-up children from his first wife. Even then Bh0li's parents accepted his marriage proposal. They had their own reasons for it. He was a prosperous person and was not demanding dowry. But at the time of marriage, seeing the pockmarks on Bholi's face, he started demanding a big dowry. In this way his mean nature instantly surfaced. He wanted to black- mail the situation. In spite of the pitiable pleadings by Bholi's father. This mean fellow refused to budge. He cannot be called a human being. He was a crooked and crude person. He was greedy and mean. He had no sense of respect of others. He was harbouring a callous heart that was empty of human feelings.

Q4. Character of 'Bholi's teacher.

Ans. The teacher was a very kind and sympathetic person. She knew her profession quite well. She gave right education to her pupils. She worked with patience. She played a crucial role in Bholi's life. Bholi could not talk. She was shy and lacked confidence. But when she was sent to school her teacher gave her all love and affection. She filled her heart with a new hope. She encouraged her to learn. She boosted her confidence. Finally, she was successful in carving out her masterpiece of courage and outspoken personality in the form of Bholi.

Q5. Theme of the story.

Ans: The story 'Bholi' has many themes. But the main motif of the story is role of education in a person's life. It depicts how education boosts one's confidence and makes one outspoken. Education changes the way of thinking of a person. Bholi was an outcast because of her lack of sense and ugly face. She could not talk properly. She was scared and bore everything without resistance. She was sent to school. Her teacher treated her with love and affection. She encouraged her to learn. She guided her properly. She filled her mind with wisdom and, as a result of this education, Bholi turned into a woman of substance. She became brave and courageous. She had now courage to rise against the injustice in society.

ABHILEY

Character Sketch of Abhilay*: The writer 'Abdul Gani Sheikh' has beautifully portrayed a rendezvous of simplicity and ignorance with modernity in his short-story-Abhiley. The character of Abhilay is worth contemplating and we come across many such Abhiley's in our day-to-day life. A woman who has led her entire life in sheer ignorance and simplicity is suddenly exposed to the complicated and abstruse world of modernity. Her reaction obviously would be sometimes humorous and sometimes pathetic. The very beginning of the story shows the apprehensions and fears that haunt in the old age. At the same time, we are also introduced to the indifference of others towards Abhilay.*

The younger generations mostly fail to understand elders love for them and when they realize it is already too late. While other family members take it easy, Abhilay is not ready to accept the separation from her loved ones. She always misses Ruksana her granddaughter and keeps asking everyone about her whereabouts. Abhilay is simple at heart. She knows nothing about modern technology and outside world. So to her, Srinagar is as distant a place

as Turkey. She is truly a very innocent and ignorant woman. If she hears of a mishap anywhere, she at once, becomes worried about her granddaughter, Ruksana. She is a talkative lady and loves to chatter with her friends about familiar matters. She loves to gossip. Once she went to see a movie. The movie bored her. It was a horrible experience to see moving images on the screen. Someone told her that it was about mother-in-law and their bad treatment of their daughter-in-law. The next day she sat on roof top with other lady and spewed poison on all mother-in-laws.

Such was her innocence that she failed to understand that she herself was someone's mother-in law. Abhilay also suffered from the fear of crowds. Once she had gone to annual dormice festival. The hustle and bustle squeezed breath out of her and she decided never to go there again. She is a loving granny. Once she heard that there were floods in Srinagar, such was her love for her granddaughter, she ventured out of hamlet (which she would have never done before owing to some fears) just to know about the well-being of her granddaughter. Once convinced, she became so restless to go back to her home that compelled the author to purchase return tickets on the very same evening.

THEMES: *The short story 'Abhilay' revolves around two grand themes: Tradition verses modernity, and the simplicity and innocence of rustics. The writer 'Abdul Gani Sheikh' has beautifully portrayed a rendezvous of simplicity and ignorance with modernity in his short story-Abhilay. Abhilay has led her entire life in sheer ignorance and simplicity. Her reaction obviously would be sometime humorous and sometimes pathetic. Her too much ignorance makes her a laughable character. Even the members of her own family giggle at her ignorance. Abhilay represents the simplicity of Ladakhi women. She is simple at heart. She knows nothing about modern technology and outside world. Respecting one's tradition is a good thing but it shouldn't mean that we don't know even the difference between Srinagar and Turkey, or between Delhi and Srinagar. Generation Gap is another theme of the story. The younger generations are indifferent towards Abhilay. They fail to understand Abhiley's love and concern. Instead of seeing things from her point of view, they make fun of her.*

GENERATION GAP: *With the emergence of a new Generation, new values, new traditions, new ideologies and new aspirations also take birth. Youth stands for adventure and enterprise. It is full of energy and enthusiasm; initiative and activities. It believes in going forward. It is bubbling with new ideas on the other hand; age stands for old order or traditions. The younger generations fail to understand the morals and values to which the oldies stick to. They do not want to believe in readymade beliefs. At the same time, the older generations are not ready to change and accept the new ideologies of younger folks, with result, the two generations-old and new, are at loggerheads with each other. This gives birth to Generation Gap, or a conflict or clash between the father and the son, or between age and youth. With the result, distances are created leading to communication barrier. Parents can play a vital role in minimizing communication Barrier. This problem is found more in working parents they don't have much time to spend with their wards. When they realize the problem, it's already too late. So, parents must ensure to spend extra time with their children. The elders should change their mentality and attitude towards youngsters.*

*Generation Gap can be abridged by sympathy and better understanding minor faults on both sides must be overlooked and shortcomings should be forgiven. The key to this problem is one word '**ADJUSTMENT**'. Parents must appreciate children for what they are and not for what they want to be. Parents should enter into an open discussion with their children regarding various issues- religious, morals, political, ethical, etc. Quoting examples and narrating stories of great men can be helpful in grooming the moral self of youngsters. What is needed is friendship, not animosity; sympathy, not criticism; understanding, not judgment; to abridge the Generation Gap.*

Q. HOW'LL YOU RELATE BACKWARDNESS TO ILLITERACY?

Some unfortunate folks unable to receive proper education because of poverty, gender or other such reasons tend to be illiterate. As we know, education helps in unfolding the mind. An educated man doesn't simply know a few facts, he knows himself and his place in the society. Sadly an illiterate knows nothing about his status in a society. For him all faces remain insulated. He fails to understand the realities. He can't differentiate between good and bad, and stays away from his responsibilities. An illiterate fellow lacks the qualities of the refinement of perception, depth of insight and sureness of perception. His illiteracy plugs him into the dark wells of superstition and blind beliefs.

An illiterate is more gullible and gets easily cheated. Slavery, untouchability, dowry system, and other such social evils are prevalent only in literate societies. An illiterate farmer knows nothing of latest technologies and fails to improve the yield of crops. An illiterate businessman is not aware of latest market trends and fails to boost it resulting in huge losses. Be it a farmer, a businessman, or any other person, illiteracy halts their progress and thus keeps them backward thus, illiteracy itself is the root cause of backwardness of a person, a society or a nation. If we want to progress and curb backwardness, we need to be confident, responsible, and full of knowledge which can be attained only through proper education.

OUT OF BUSINESS

Q1. What was Rama Rao's business? How did it collapse?

Ans: Rama Rao did not have any big business. He worked as the Malgudi agent of a gramophone company. He had deposited the little money he had inherited with the company as security. For five years his business brought him enough money to help him keep his wife and children in good comfort. But then suddenly the company collapsed. The gramophone company which had its factory somewhere in Northern India, automatically collapsed when a bank in Lahore crashed which was itself the result of a Bombay financer's death?

Q2. What effect did the collapse of Rama Rao's business have on him and his family?

Ans: Rama Rao suddenly found himself on the streets. At first he could hardly understand the full significance of this collapse. There was a little money in the bank and he had some stock on hand. But the stock moved out slowly. He could not even get back his security from the gramophone company. Rama Rao's wife tried some measures of economy. She sent away the cook and the servant, withdrew the children from a fashionable nursery school and sent them

to a primary school. And they let out their bungalow and moved to a very small house behind the market. Rama Rao moved from pillar to post in search of a job for himself. But all was in vain. Thus, the condition of the family went from bad to worse.

Q3. What is the stock referred to in line I3?

Ans. Roma Rao worked as Malgudi agent of a gramophone company. He dealt in the gramophone records manufactured by this company. The stock referred to here is the stock of gramophone records he had on hand with him when the company failed.

Q4. Why did Rama Rao worry less about his family after he came across The Captain?

Ans. The Captain was the name of a journal. It consisted of four pages and all of them were devoted to crossword puzzles. It offered every week a first prize of four thousand rupees. For the next few days his head was free from family cares as he was intensely thinking of his answers for the puzzles. After sending down his solutions, he waited for the results. He had all hope of winning the prize. But he was badly disappointed when the results came. Week after week he invested a little money and sent down his solution and every week he waited the results with a palpitating heart. All the time Rama Roa remained lost in thinking of the answers to be for filled in the puzzles. He became indifferent to his wife and children.

Q5. Why did Rama Rao decide to send in at least four entries for the 'special' offer crossword competition?

Ans. Before this competition, Rama Rao had been sending his single entry for the crossword puzzles week after week. He always hoped to win a prize but never got any. One day, when he caught the sight of a special offer of eight thousand rupees in the journal, he was excited. As he badly needed money, he didn't want to lose it. He studied the puzzle thoroughly. There were only four doubtful corners in it. This time he did not want to take risk. He didn't want to leave anything to chance. He wanted to be sure of winning a prize. So, he decided to send in at least four entries this time.

Q6. Why did Rama Rao plan to go to Madras?

Ans: Rama Roa had sent in four solutions for the special offer in crossword puzzle competition. This time he was dead sure of winning the prize because there were only four doubtful corners and he had covered them all by sending four entries. With this certainty, he started making plans for future. He thought he would send away the tenants and take his wife and children back to the bungalow. He would leave all the prize money in his wife's hands for her to manage the home affairs and run the family for a couple of years. For himself, he would take only a small amount and go away to Madras. There he would try to find some profitable work for himself. That was why Rama Rao planned to go to Madras.

Q7. What made Rama Rao believe that God had shown him mercy?

Ans. Rama Rao had tried his best to find a job for himself but all in vain. He then sent in the solutions for the crossword puzzles with the hope to win. But here too he could not win. He had' now all hope that he would win a big prize in the 'special offer crossword competition'. This time he had taken no chances. But when the results came, there was no prize for him. It was too big a shock for him. He decided to end his life on the railway line. He lay down across the railway line. A train was due in a few minutes. Roma Rao kept lying for quite some time but the train didn't come. He got tired and rose up. He walked towards the station. Rama Rao came to know that there had been an accident in which a goods carrying

train had derailed. As a result the train was three hours late. Thus Roam Roa was sure that God had shown him mercy.

Q8. How did Rama Rao alternate between hope and despair?

Ans. Rama Rao desperately tried to overcome his financial difficulties. He followed the short cut

method of solving the crossword puzzles. He would send an entry every week and then waited for the results. But when the results came, he would never find his name among the names of the winners. He was thus filled with despair. For hours he would remain in a state of shock. The only way to forget it was to plunge into the next week's puzzle. He would give all time to think of correct solutions. There would begin another week of hope after he had sent in his entry. But this previous hope would again change into despair when the results came. Thus Rama Rao alternated between hope and despair.

Q9. Keeping in view the theme of the story, do you think that short cut methods should be followed in life? Why?

Man is the crown of creation. He should not lose hope at any stage. Even if success eluded him for some time, he should not despair. He should keep clam and try hard for success. He can succeed only if he plans his actions. There are people who use some shortcuts to do something and ignore sustained efforts. Short cuts may have given him some success but it was all temporary. There is risk involved in short cut methods. If we work and put in sustained efforts, we are sure to win and feel satisfied. A sustained effort is the only key to real and everlasting success. Therefore, we must never form the habit of following short cut methods. This is what we learn from Rama Rao's story. He follows short cut methods to overcome his financial problems. These methods ultimately take him to the railway line. It is only God's mercy that holds up the train. Otherwise, Rama Rao's shortcut methods would have cut his life short.

Q10. Give character sketch of Rama Rao:

Ans Rama Rao is a caring father and husband Rama Rao works in a gramophone company. He has wife and children whom he loves very much. He lives a comfortable life. But one day his bitterness collapses. He finds himself in the streets. Rama Rao goes from pillar to post in search of a job for himself. But all was in vain. He now becomes a symbol of despair. He loses courage. He desperately needs a job to feed his family. But he cannot find one He follows a short cut method of solving puzzles to overcome the problems of his life. But he fails there too. He is in utter hopelessness. He does not know what to do. Finally, he decides to commit suicide. But it is God's mercy that saves him. We feel sorry for him over his pitiable condition. But one thing worth to be noted is that he fails to maintain his cool to fight out the crisis. instead he resorts to shortcut methods that min him. He never thinks about temperament solving his problems by any other just way.

Q11. What is the theme of the story 'Out of Business'?

Ans: The story. 'Out of Business' strikes a very clear theme that we should not follow shortcut methods in life to solve our problems. These short cuts become the cause of our ruin. A short cut method means doing something quickly. It is said that haste makes waste. When we are in haste, we are sure to commit mistakes. Shortcut approach is not a sound approach for any work. Instead we must understand that the real success lies in the

sustained efforts and hard work. Dedication and honesty give us strength. We should maintain our cool mind and fight out the crisis. There is no substitute to hard work. It pays in the long run.

THE SERVANT

Q1. Why had Gerasim been going about in vain in the village?

Ans: Gerasim had been working for a merchant in Moscow. But then he was summoned back to his village for military duty. However, he had not been drafted. So he had nothing to do in the village. It seemed dull to him in the village. He was not used to village life. He didn't like to work in the village. Therefore, he didn't feel happy living in the village. That was why he had been going about in vain in the village.

Q2. Where had he been working? Why did he return to his village?

Ans: Gerasim had been working in Moscow. He was from a village. but he had been living in Moscow since early boyhood. When still a mere child, he had gone to work in a brewery as bottle-washer, and later as a lower servant in a house. In the last two years he had been a merchant's employee. But then he was summoned back to his village for military duty. So he had it give up his job and return to his village.

Q3. What did the coachman tell Gerasim when he narrated his village?

The coachman gave Gerasim a long sermon on honesty and faithfulness. He said that the workers serve their employers diligently. The employers in return lose their trust in them. When they leave their jobs, they usually muddle up their way back

to them. Soon the coachman added that they (the workers) should serve their masters in a way that their masters should think a lot of them and take them willingly again when they come back to them. The coachman gives his own example. He says that if ever he leaves again his place and goes home, his master would gladly take him back. Thus he tells Gerasim indirectly that if he had served his master sincerely. he would not have to hanker for a job them.

Q4. How will the coachman persuade his master inn employ Gerasim?

Ans: The coachman had a glib tongue. He first tried to convince his master that it was no longer worth to keep Polykarph as a servant. He had become too old to do his job well. The coachman sat

Polikarpych never shoveled the snow away on time. Thus he could bring his master trouble from the police. And when it was his turn to be a night watchman. he slipped away at least ten times a night. Thus the coachman painted Polikarpych in very dark colours. The master had real sympathy for his old servant who had sincerely served him for fifteen years. He thought it a sin to leave him to starve m his old age. But the coachman was perfect in his glib art. He succeeded at last in persuading his master to dismiss Polikarpych and instead employ Gerasim who, he said, was a young man from his village with no job.

Q5. Why was the master reluctant to disengage the old servant?

Ans: The master was a very noble man. He had all love and sympathy for his old servant. The servant had served him For fifteen years. He had never any complaint against him. He had the concern that where would he go in his old age if he was sacked from the service. He

knew that he had a wife to feed. He thought it to be sin to leave the old man and woman to starve in their old age. He was conscience-stricken. His conscience didn't allow him to disband him from service. Above all there wasn't any cause whatsoever to dismiss him.

Q6. What did Gerasim hear while crossing the yard?

Ans) Gerasim heard voices coming from a room. They were the voices of a man and a woman. They were the old servant and his wife who were being disengaged from there. They were wailing over the way they had been dismissed. They had served their master honestly and faithfully. But now in their old age they had been asked to go. They had nowhere to go to. They could do nothing but beg. Gerasim heard the man saying that the coachman was the real devil on whose insistence it had happened. At this the wife called him a serpent. She said that she would go to the master and tell him how the coachman had been stealing his things. The old woman burst out sobbing. She said that the coachman had ruined them.

Q7. What did the old couple think about the master?

Ans: The old couple was very angry with the master. They thought that their master was so mean. They had served him honestly and faithfully for fifteen years. But now he had dismissed them in their old age. The old woman said that their master was selfish who cared only for his own advantage. He had no sympathy for them. But the husband said that the master was not so much to blame. He called the Coachman the real culprit. But finally, it was the master who had to take the decision of dismissal of the old man. Thus, they were not happy with their master at all. They felt that he was equally wicked.

Q8. What was the effect of old couples' conversation on Gerasim?

Ans: Gerasim had heard all that the old couple had said. Their conversation stabbed him like a dagger. He realized what misfortune he would be bringing the old couple, and it made him sick at heart. He stood there for a long while, saddened, lost in thought. He felt sorry for the old couple. He was remorse stricken. He was in fix finally he turned and went back to Yegor, the coachman. He thanked him for all the trouble he had taken for him. but said that he didn't like the place. He would look for another one for himself

Q9. How does the story reflect humility of Gerasim?

Ans: Gerasim is full of modesty is reflected all through the story. In the very beginning, Gerasim hankers after a job in Moscow. But he fails to find one. While finding the job there, he stays with some of his friends and relatives. When he finds that some of his friends suffer unpleasantness from their masters on his account. He decides not to be a burden on them. Because of this, sometimes he goes a hole day without eating. But he never says a word against any one. He comes to a man from his village who is a coachman with a rich merchant. The merchant starts giving him a sermon on faithfulness and honesty. He indirectly blames Gerasim because his previous master had refused to take him back. Gerasim listens to all this with downcast eyes. This shows his humility. The humility is at its climax at the end of the story. He hears the old couple wailing over the dismissal of the old servant from his service. He feels very sorry for the old couple. He comes back to the coachman and refuses to take the place which he needs badly. Truly Gerasim is very humble character.

Writing work

Q1. Compare and contrast the characters of the Gerasim and the Coachman?.

Ans: Gerasim and the coachman have nothing common except that they are from the same village. The two are poles apart in their character. One is the opposite of the other. Gerasim is humble, simple-hearted, kind and loving, self-sacrificing and less talkative. On the other hand, the coachman is proud, cunning, hard-hearted, selfish and abusive. No doubt the coachman helps Gerasim to get a job with his master but the entire episode shows more of his cunningness than helpfulness. And the contrast becomes so clear at the end of the story when Gerasim overhears the old couple's conversation and refuses to take their place. The coachman becomes furious and calls him an idiot. In a nutshell, we see a devil in one and an angel in the other.

Q2. Write down the theme of the story, the servant.

Ans: The theme of the story. "The servant" is sincerity and humility. This theme runs across the whole story. Humility and sincerity are the real wealth of a person. The material wealth though needed by a person is not everything. One cannot achieve all happiness from wealth. Sincerity gives a long lasting pleasure. It makes us light hearted. Sincerity in a person makes him a human being. If we lack sincerity, we are worse than a beast. We see in the story at the end that Gerasim feels light hearted even though he loses the position which he badly needs.

DUSK

Q1. What was the atmosphere at the Hyde Park?

Ans: It was an early March evening at around half past six. The dusk had fallen heavily over the scene. There was a wide emptiness over road and sideways, and yet there were many figures moving through the half light. It was hard to distinguish people from each other in such an atmosphere. Beyond the sheltering screen of bushes and palings came a realm of brilliant lights. In short, we can say that the atmosphere at the Hyde Park was that of a glowing. The mood of the people completely harmonized with the scene at the park.

Q2. Do the atmosphere and the mood at the pain justify the title of the story?

OR

Justify the title of the story, Dusk.

Ans: The title of the story is very apt. It is the evening time of an early March day. Dusk has fallen heavily on the scene. This is the setting the story. Not only the park is envelope in the dusk. but it is also cost on the mental and spiritual level. The people who have visited the park at this time seem to have been defeated in their lives. They are those who are no longer wanted or needed anywhere. They are the people of fallen fortunes and dead hope which come out at this time to hide all their failures from the scrutiny of the curious conscience. In a way they have reached the dusk of their life. They are gloomy and hopeless. So the scene at the park harmonizes with the present mood of the people there. Thus, the title of the story precisely reflects the mood and the atmosphere at the time of dusk.

Q3. Draw a profile of the person who first sat near Gortsby on the bench.

Ans: The person who first sat near Gortsby on the bench was an elderly gentleman. He seemed to have lost interest in life. He looked defeated. But he would not admit it. It seems that he was mostly not cared of by anybody. The gentleman looked a self-respecting person.

He could never bow to anything or anybody even in that stage of life. His clothes could scarcely be called shabby. But one could not call them fine also. It seems he was in the dusk of life.

Q4. What according to Gortsby was the weak point of young man's story?

Ans: The young man told Gortsby that he was a new comer in the town. He stayed in a hotel some way off Berkshire square. As he hated using hotel soap, he had left his hotel to buy a cake of soap. He had only a shilling in his pocket. He spent it on buying the soap and having a drink at a bar. The young man added when he came to turn his steps back to the hotel, he suddenly realized that he had forgotten the name of the hotel and the street it was in. Gortsby demanded the young man to produce the cake of soap as an evidence for his story. But the young man had no soap with him. It was this lack of evidence that Gortsby called the weak point of the young man's story.

Q5. While walking back to his seat in the park, what did Gortsby see?

Ans: As Gortsby retraced his steps past the seat he saw an elderly gentleman. He was poking and peering beneath the seat and on all sides of it as he seems to have lost something. Gortsby recognized him to be the same old man who had been sitting by his side on the bench that evening. He enquired of him what he was looking for. The old man answered that he had lost a cake of soap and was looking for it, Gortsby at once realize that he had been fooled by the young man.

Q6. How did Gortsby feel when he realized he had been fooled?

Ans: The story does not tell us how Gortsby felt when he realized that he had been fooled. But one can guess he must have felt very silly. The Youngman had spun a yarn to extort money from Gortsby. Though he did not believe his story in the beginning, but he believed him after finding the cake of soap as evidence. But it was only in the end that Gortsby was able to sift grain from the chaff.

Q7. What did Gortsby imagine about the people who visited the Hyde Park?

Ans. Gortsby imagined that people who visited the Hyde Park were those to be defeated in life. They were the people who had fought and lost their battle of life. They were the people whose fortunes were fallen. They had no hopes. they visited the park at dusk to hide their shabby clothes, fallen fortunes and bowed shoulder from the scrutiny of the curious silence and the gloom of the atmosphere harmonized with their feelings. Gortsby compares them with bats that also come out in the dark only.

Q8. What is irony? Bring out the elements of irony in the story?

Ans: Irony is a technique used by writers in certain situations. In this story, a statement made that is obviously contradicted by the tone of voice or the context the expectations aroused by the said situation, are reversed. The writer has used this technique a couple of times. First, when the young man remarks with a curse: "You wouldn't be in a good temper if you were in the fix." Immediately thereafter Gortsby is in a fix instead of the young man. Again, when the young man speaks eloquently: "l suppose you think I have spun you rather an impossible yarn." Later on, the same impossible yarn becomes possible. Again the argument of Gortsby that the weak point of the story was that he could not produce the soap, proves providently helpful for the purpose. Finally, the greatest of ironies in the plot is

Gortsby admonishing himself for being too clever in Judging by circumstances, but ultimately he falls prey to his own statement.

Q9. What is Juxtaposition? Has Saki been able to Just oppose humour and pathos in 'Dusk'?

Ans: Juxtaposition means putting opposite things together to show the contrast. In the story 'Dusk,' Saki has Juxtaposed humour and pathos in a very subtle manner. There is pathos in the description of people who visit the Hyde Park at dusk. Their hopes are dead and fortunes fallen. There is also the presence pathos in the description of the elderly gentleman 'to whose piping no one dances. There is the juxtaposition of the improbable story that the young man tells. The weak points in his story make us laugh. A roar of laughter escapes us at the end of the story when the elderly gentleman tells Gortsby that he has lost a cake of soap. Thus there is both humour and pathos in the story intertwined skillfully by the writer.

Q10. Discuss the theme of the story 'Dusk'.

Ans The story 'Dusk' is an interesting story. The theme of the story is that we should never let ourselves to be fooled by the false stories of others. In the story Gortsby falls prey to the improbable tale of the Youngman. Thus, the story conveys the message that we should always remain vigilant about our surroundings. We should never be swayed by the pathetic stories of strangers. In short, we should stop being gullible.

Q11. Write a short ironical dialogue.

Ans: A: We went to the river this morning to enjoy swimming.
B: Very nice. How long did you swim?
A: All day, there was no water in the river.
B: Fool, then how could you swim?
A: You fool, our eyes swam.
B: Your eyes swam?
A: Yes, with tears:
B: So you enjoyed yourself with tears. Ha! Ha!

Q13. Do you approve of the behaviour and approach of Gortsby in the story? Explain.

Ans: Gortsby's behaviour and approach in the story are quite natural. His actions and reactions are all natural. He proves himself an intelligent person. He seems to be very sympathetic towards the people in distress. This intelligent character comes to surface in the story when he at once picks the weak point in the young man's story. No doubt he gets fooled at the end of the story. But it is his goodness that he agrees to help the young man. He understands his problem which made him pity him. In short we can say that he does everything rightly.

THE PROPOSAL

Thinking about the Play

Q1. What does Chubukov at first suspect that Lomov has come for? Is he sincere when he later says "And I've always loved you, my angel, as if you were my own son"? Find reasons for your answer from the play.

Answer: At first, Chubukov suspected that Lomov had come to borrow money. He was not sincere when he told Lomov that he had always loved him and that he was like his own son.

He had decided that he would not give Lomov any money if he tried borrowing from him. If he truly meant what he had said, then he would not have thought of not giving him money. He said so only because Lomov had come with the proposal to marry his daughter.

Q2. Chubukov says of Natalya: "... as if she won't consent! She's in love; egad, she's like a lovesick cat..." Would you agree? Find reasons for your answer.

Ans: Chubukov thought that Lomov was a good marriage prospect for his daughter. He had been waiting for this proposal. When Lomov expressed his doubt regarding Natalya's consent to the proposal, Chubukov immediately told him that she was in love with him. However, this was not true. Natalya did not seem to be in love with Lomov at any point in the play. It seemed like she was more attached to her land, meadows and dogs than to Lomov. In fact, the way they kept getting into arguments about trivial matters suggests that neither Lomov nor Natalya was in love with the other.

Q3. (i) Find all the words and expressions in the play that the characters use to speak about each other, and the accusations and insults they hurl at each other. (For example, Lomov in the end calls Chubukov an intriguer; but earlier, Chubukov has himself called Lomov a "malicious, double faced intriguer." Again, Lomov begins by describing Natalya as "an excellent housekeeper, not bad-looking and well—educated."

Answer: (i) Several words and expressions have been used by the characters to describe each other. Some of them are as follows:

Chubukov: grabber, intriguer, old rat and Jesuit

Natalya: a lovesick cat, an excellent housekeeper, not bad-looking and well—educated

Lomov: a good neighbour, a friend, impudent, pettifogger, a malicious, double-faced intriguer, rascal, blind hen, turnip-ghost, a villain, a scarecrow, monster, the stuffed sausage, the wizen-faced frump, boy, pup, milk sop and fool

Quadratic Equation

Before we discuss Quadratic Equation we must know Quadratic Polynomial

→ **Quadratic Polynomial**:- Polynomial of degree 2 is said to be Quadratic Polynomial

for e.g x^2-2x+5, $\sqrt{5}x^2+5x-2$; etc are Quadratic polynomials

The general form of Quadratic polynomial is

$$f(x)=ax^2+bx+c$$

where a, b, c are real numbers

$a \neq 0$ and x is a variable.

→ **Quadratic Equation**:- If $P(x)$ is a Quadratic Equation, then $P(x)=0$ is said to be Quadratic Equation.

The general form of Quadratic Equation is

$$ax^2+bx+c=0$$

where a, b, c are real numbers

provided $a \neq 0$

→ **Roots of Quadratic Equation**:-

Real numbers α & β are said to be roots

Continue

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Quadratic Equation.

of Quadratic Equation if $P(\alpha)=0$ & $P(\beta)=0$

If x variable is used in the Equation then we can say

$x=\alpha$ is the root of $P(x)=0$, iff $P(\alpha)=0$

and $x=\beta$ is the root of $P(x)=0$, iff $P(\beta)=0$

Quadratic Equation can have atmost two real roots.

Finding the roots of Quadratic Equation is known as solving the Quatic Equation.

→ **Solution of general Quadratic Equation.**

OR

Finding the roots of the Quadratic Equation by the method of Completing Square

OR

Derive general Quadratic formula.

Solution:- Consider a general Quatic Equation

$$ax^2+bx+c=0,\ a\neq 0$$

Dividing b/s by a

we get

$$x^2+b/a\,x+c/a=0$$

Continue

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Add and subtract $[\frac{1}{2}$ Coefficient of $x]^2$

We get $\Rightarrow (\frac{1}{2} b/a)^2 = \frac{1}{4} b^2/a^2$

$$x^2 + b/a\, x + \frac{1}{4} b^2/a^2 - \frac{1}{4} b^2/a^2 + \frac{c}{a} = 0$$

$$\Rightarrow \left(x + b/2a\right)^2 - \frac{(b^2 - 4ac)}{4a} = 0$$

$$\Rightarrow \left(x + b/2a\right)^2 = \frac{b^2 - 4ac}{4a}$$

$$\Rightarrow \left(x^2 + b/2a\right)^2 = \left(\sqrt{\frac{b^2 - 4ac}{4a^2}}\right)^2$$

$$\Rightarrow \left(x^2 + b/2a\right)^2 = \left(\frac{\sqrt{b^2 - 4ac}}{2a}\right)^2 \quad -(1)$$

By the above process we can write every Quadratic ~~Equation~~ in the form $(x+a)^2 = K^2$.

This method of writing a ~~Quadratic~~ Quadratic ~~Equation~~ in the form $(x+a)^2 = K^2$ is known as the method of Completing Squares.

Now from ~~Equation~~ (1)

we get $x + b/2a = \pm \frac{\sqrt{b^2 - 4ac}}{2a}$

Continue

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$$\Rightarrow x = \frac{-b}{2a} \pm \frac{\sqrt{b^2-4ac}}{2a}$$

$$\Rightarrow x = \frac{-b}{2a} \pm \frac{\sqrt{b^2-4ac}}{2a}$$

$$\Rightarrow \boxed{x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}}$$

$$\Rightarrow x = \frac{-b+\sqrt{b^2-4ac}}{2a} \text{ and } x = \frac{-b-\sqrt{b^2-4ac}}{2a}.$$

These are called the two roots (real) of Quadratic Equation $ax^2+bx+c=0$ provided $b^2-4ac \neq 0$

$\Rightarrow b^2-4ac$ should not be negative

Where b^2-4ac is said to be discrimant and is denoted by D.

Now if $b^2-4ac < 0$ i;e negative then $\sqrt{b^2-4ac}$ is not real. Therefore the Quadratic Equation have no real roots or roots does not exist.

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Now If $b^2-4ac \geq 0$ then Quadratic Equation have real roots Say α and β, given by

$$\alpha = \frac{-b+\sqrt{b^2-4ac}}{2a}, \quad \beta = \frac{-b-\sqrt{b^2-4ac}}{2a}$$

In brief for equation $ax^2+bx+c=0$
provided $b^2-4ac \geq 0$

then $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$.

The above result is known as Quadratic formula and dis was first given by Indian mathematician Sridharmacharya. Therefore it is known as Sridharmacharya's formula

E.g 1. Solve the Quadratic Equation $x^2+2x-4=0$ by the method of Complet- of squares.

Sol:- $x^2+2x-4=0$

Add and subtract $\left[\frac{1}{2} \text{Coefficient } x\right]^2$

$\Rightarrow \left[\frac{1}{2} \times 2\right]^2 = [1]^2 = 1$

we get $x^2+2x+1-1-4=0$

Continue

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$$\Rightarrow x^2+2x+1-5=0$$

$$\Rightarrow (x+1)^2=5$$

$$\Rightarrow (x+1)^2=(\sqrt{5})^2$$

$$\Rightarrow (x+1)=\pm\sqrt{5}$$

$$\Rightarrow x=-1+\sqrt{5} \text{ & } x=-1-\sqrt{5}$$

These are the roots of the Quadratic Equation by the method of Completing Squares.

E.g 2. Solve the Quadratic Equation $x^2+2x-4=0$ by Quadratic formula.

Sol:- Given Equation is $x^2+2x-4=0$

Here $a=1, b=2$ and $c=-4$.

Quadratic formula is $x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$

$$\Rightarrow x=\frac{-2\pm\sqrt{2^2-4(1)(-4)}}{2(1)}$$

$$\Rightarrow x=\frac{-2\pm\sqrt{20}}{2}$$

$$\Rightarrow x=\frac{-2\pm\sqrt{5\times4}}{2}$$

Continue

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$$\Rightarrow x = \frac{-2 \pm 2\sqrt{5}}{2}$$

$$\Rightarrow x = \frac{2(-1 \pm \sqrt{5})}{2}$$

$$x = -1 \pm \sqrt{5}$$

$$\Rightarrow x = -1+\sqrt{5} \quad \& \quad x = -1-\sqrt{5}$$

these are the roots of the Quadratic Equation by using general Quadratic formula.

→ Nature of roots :-

Consider the general Quadratic Equation.

$$ax^2+bx+c=0, \; a \neq 0$$

Here $D = b^2-4ac$

Case I :- When $D>0$ i.e $b^2-4ac>0$ then the roots are real and distinct (unequal)

Case II :- When $D=0$ then the roots are real and equal

i.e, $\alpha = \beta = -b/2a$ (Repeated roots)

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Case II :- When $D < 0$

then the roots are not real

OR

Roots does not exist.

Sum and product of roots :-

Roots are $\alpha = \frac{-b+\sqrt{b^2-4ac}}{2a}$, $\beta = \frac{-b-\sqrt{b^2-4ac}}{2a}$

Now Sum of roots $= \frac{-b+\sqrt{b^2-4ac}}{2a} + \frac{-b-\sqrt{b^2-4ac}}{2a}$

$= \frac{-b+\sqrt{b^2-4ac}-b-\sqrt{b^2-4ac}}{2a}$

$= \frac{-2b}{2a} = -b/a$.

So $\boxed{\text{Sum of roots} = -b/a}$

Now product of roots $= \alpha\beta = \left(\frac{-b+\sqrt{b^2-4ac}}{2a}\right)\left(\frac{-b-\sqrt{b^2-4ac}}{2a}\right)$

$= \frac{(-b)^2-(\sqrt{b^2-4ac})^2}{4a^2}$

$= \frac{b^2-b^2+4ac}{4a^2} = \frac{4ac}{4a^2} = c/a$.

Continue

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Quadratic Equation

$\Rightarrow$ **Product of roots = c/a**

→ Form a Quadratic Equation whose roots are given:

Consider a general Quadratic Equation

$$ax^2 + bx + c = 0, \quad a \neq 0$$

We can write $x^2 + \frac{b}{a}x + \frac{c}{a} = 0$

$$\Rightarrow x^2 - \left(-\frac{b}{a}\right)x + \frac{c}{a} = 0$$

$$\Rightarrow x^2 - (\alpha+\beta)x + \alpha\beta = 0$$

$$\Rightarrow x^2 - \text{Sum of roots}(x) + \text{Product of roots}$$

$$\Rightarrow x^2 - Sx + P = 0$$

Now $x^2 - Sx + P = 0$ is an Equation formed by the given roots.

END.

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P(1-8) P→1 # ARITHMETIC PROGRESSIONS (AP)

→ **Pattern:-** Patterns are the quantities which increases or decreases progressively by a fixed amount.

Examples

i) Number of balls thrown after every over.

6, 12, 18, 24, 30 - - - - -

ii) revolution of Earth around the Sun

12 months, 24 months, 36 months - - -

Terms:- Various numbers occuring in a pattern are called its terms.

→ **Arithmetic progressions:-** An Arithmetic progression is that list of numbers in which first term is given and each term, other than the first term is obtained by adding a fixed number to the preceding term.

The fixed number is known as Common difference and is denoted 'd'. The Common difference can be negative, positive or zero.

for e.g 2, 5, 8, 11 - - - - -

2016, 12, 8 - - - - -

2, 2.3, 2.6, 2.9 - - -

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→ General form of Arithmetic progression.

let us Consider an AP with first term a and Common difference equal to the number d as

$$a, a+d, a+2d, a+3d, \text{----}$$

We Can Write $t_1 = a$, $t_2 = a+d$, $t_3 = a+2d$, ----

then $t_2 - t_1 = d$

$t_3 - t_2 = d$

$t_3 - t_3 = d$

and so on.

We Can say d is the Common difference of AP $a, a+d, a+2d, a+3d$.

→ General term of an AP

OR

nth term of AP.

Let us Consider an AP with first term 'a' and Common difference d, then the AP is

$$a, a+d, a+2d, a+3d \text{----}$$

Continue

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Arithmetic Progression (AP)

1st term $= t_1 = a + (0)d = a + (1-1)d$

2nd term $= t_2 = a + d = a + (2-1)d$

3rd term $= t_3 = a + 2d = a + (3-1)d$

4th term $= t_4 = a + 3d = a + (4-1)d$

---

n^{th} term $= t_n = a + (n-1)d$.

This formula is said to be n^{th} term of AP.

→ **Two AP's having Same Common Difference**

Difference of their Corresponding terms

Let us ~~Cancel~~ Consider two AP's with same Common difference

$a, a+d, a+2d, \ldots\ldots$

$b, b+d, b+2d \ldots\ldots$

Now Difference between their first terms =
First term of first AP − First term of 2nd AP
$= a - b$

Continue

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Now 2nd term of first AP − 2nd term of 2nd AP

$= a + d - b - d$

$= a - b$.

Now 3rd term of first AP − 3rd term of 2nd AP

$a + 2d - b - 2d$

$= a - b$

Now Difference between their nth terms =

nth term of first AP − nth term of 2nd AP

$= a - b$.

→ Sequence of AP in reverse order:

OR.

To Find nth term from the end:

Let us consider an AP with first term a and Common difference d.

Let l be the last term of AP.

then the AP is $a, (a+d), (a+2d), \ldots (l-2d), (l-d), l$

Here last term = l [which is first term from the end.

continue

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Now 2nd term from the end = $l-d = l-(2-1)d$

3rd term from the end = $l-2d = l-(3-1)d$.

Now **nth term from the end = $l-(n-1)d$**.

For eg find the 6th term of AP 7, 10, 13, 16, 19, 22, 25, 28 from the end.

Here first term = 7.

Last term (l) = 28.

$d = t_2 - t_1 = 10-7 = 3$

$n = 6$.

Now 6th term from the end $= l-(n-1)d$

$= 28-(6-1)d$

$= 28-(5)3$

$= 28-15$

$= 13$.

⇒ **6th term from the end = 13**.

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Arithmetic Progression:

→ Sum of n term of Arithmetic progression.

Let us Consider an AP Containing n terms having first term a, and Common difference d.

a, a+d, a+2d, a+3d

Let S be the Sum of n terms of this AP.

then

$$S = a + (a+d) + (a+2d) + \cdots + [a+(n-3)d] + [a+(n-2)d] + [a+(n-1)d] \quad \text{---(1)}$$

Re-write it in the reverse order

we get

$$S = [a+(n-1)d] + [a+(n-2)d] + [a+(n-3)d] + \cdots + (a+2d) + (a+d) + a \quad \text{---(2)}$$

Add (1) & (2)

we get

$$2S = [a + \{a+(n-1)d\}] + [(a+d) + \{a+(n-2)d\}] + [(a+2d) + \{a+(n-3)d\}] + \cdots +$$

$$[a + \{(n-2)d + (a+d)\}] + [\{a+(n-1)d\} + a] + [\{a+(n-3)d\} + (a+2d)]$$

$$2S = [2a+(n-1)d] + [2a+(n-1)d] + \cdots$$

$$+ [2a+(n-1)d] + [2a+(n-1)d]$$

Continue

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$\Rightarrow 2S = n[2a + (n-1)d]$

$$\boxed{S = n/2\,[2a + (n-1)d]}$$

Now $S = \frac{n}{2}[a + \{a + (n-1)d\}]$

$$\boxed{S = \frac{n}{2}[a + l]}$$ [$\because a + (n-1)d$ is the last term say l].

OR $S = \frac{n}{2}[t_1 + t_n]$ [$\because t_1 = a$ (first term), $t_n = l$ (last term)]

Thus we have

$S_n = S = n/2\,[2a + (n-1)d]$

OR

$S_n = S = n/2\,[a + l]$

OR

$S_n = S = \frac{n}{2}[t_1 + t_n]$.

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→ Difference between any two term of an AP:

Consider an AP with first term a and common difference d.

⇒ AP is a, a+d, a+2d, ----------

If we have to find out difference between p^{th} and q^{th} terms

p^{th} term $= t_p = a+(p-1)d$

q^{th} term $= t_q = a+(q-1)d$

$t_p - t_q = [a+(p-1)d] - [a+(q-1)d]$

$= a + pd - d - a - dq + d$

$= pd - dq$

$$\boxed{t_p - t_q = (p-q)d}$$

For eg we have AP 2, 4, 6, 8, 10, 12, 14, 16, 18.

we have to find difference between 9th and 6th terms

$\Rightarrow t_9 - t_6 = (9-6)d$

$= 3 \times 2$

$= 6$

$\Rightarrow \boxed{t_9 - t_6 = 6}$

END

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SIMILAR TRIANGLES

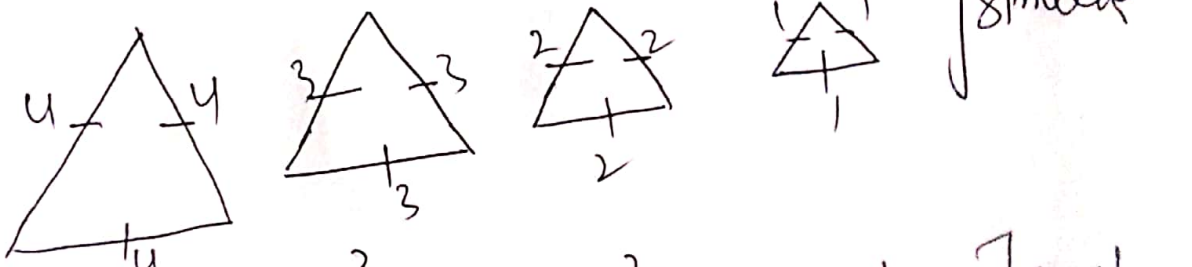
Introduction

Congruent figures:- Two geometerical figures having same shape and same size are said to be Congruent but two geometerical figures having same shape are called Similar.

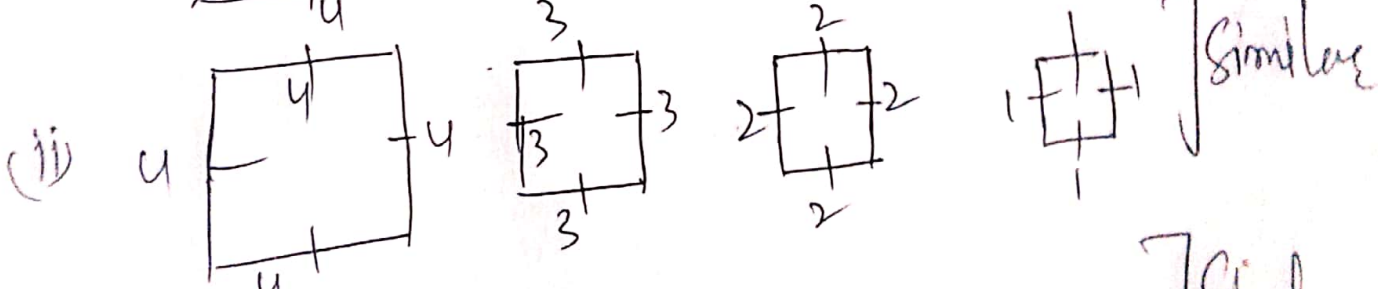
All regular polygons of same number of sides such as equilateral triangles, square etc are similar.

All circles are also similar

e.g (i)



(ii)



(iii)

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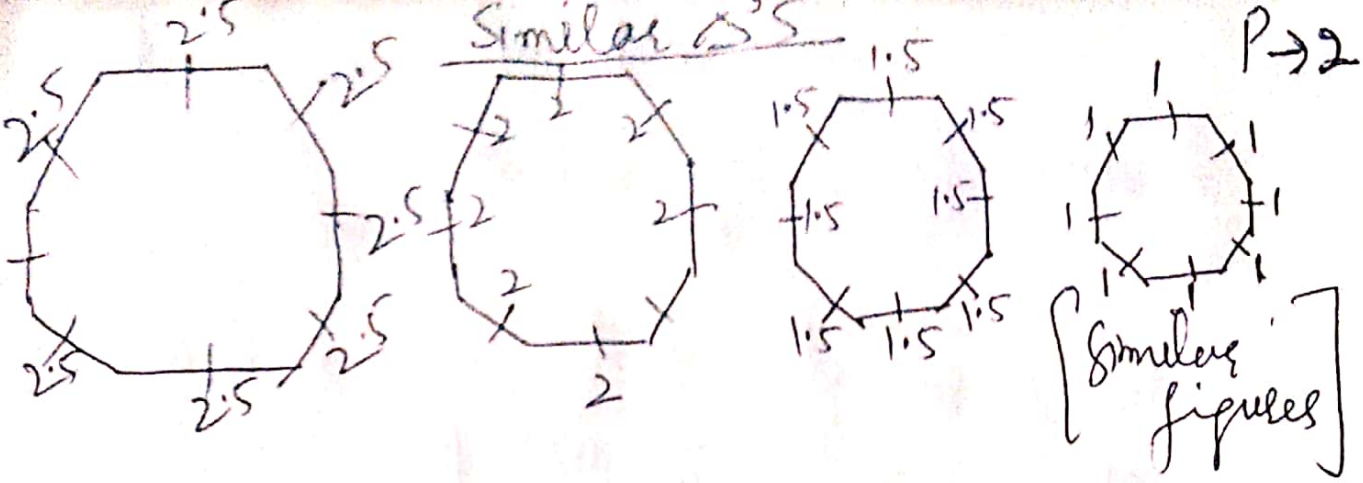
(iv) Similar figures



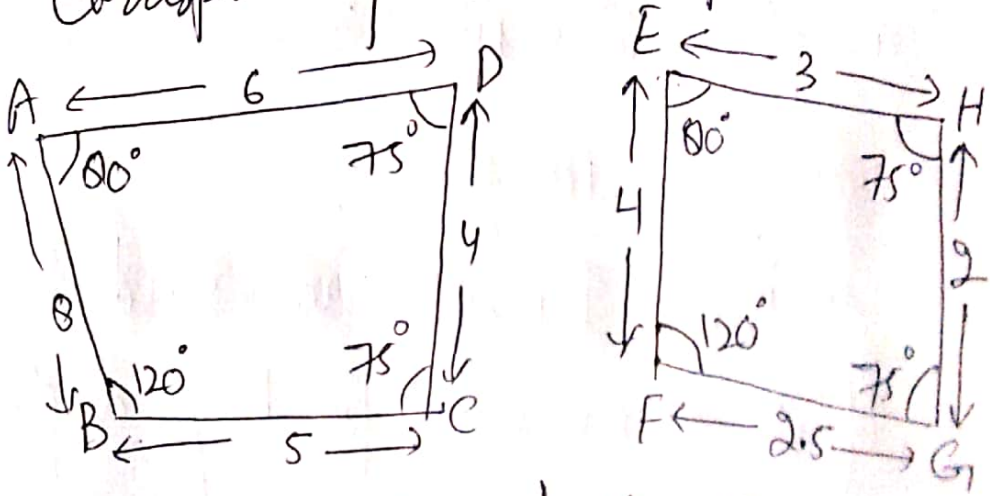
Now the Question is if the Polygons are not regular. How to find out their Similarity.

There are two Conditions to prove the Similarity of Polygons [Not regular] having equal number of sides.

i) If their Corresponding angles are equal.

ii) If their Corresponding sides are proportional.

for e.g



$\angle B = \angle F$, $\angle C = \angle C$, $\angle D = \angle H$ and $\angle A = \angle E$

$$\frac{EF}{AB} = \frac{4}{8} = \frac{1}{2}, \quad \frac{FG}{BC} = \frac{2.5}{5} = \frac{1}{2}, \quad \frac{HG}{DC} = \frac{2}{4} = \frac{1}{2}$$

$$\frac{EH}{AD} = \frac{3}{6} = \frac{1}{2}$$

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Therefore $\frac{EF}{AB} = \frac{FG}{BC} = \frac{HG}{DC} = \frac{EH}{AD}$

⇒ Corresponding angles are equal and Corresponding sides are proportional.

∴ ABCD ~ EFGH.

Proportion:- The equality of two ratio's is called proportional.

E.g $a/b = c/d$.

Similar polygons:- Two polygons of the same number of sides are similar if (i) their Corresponding sides are proportional and (ii) their Corresponding angles are equal.

Similar Triangles:-

Two triangles are said to be similar if (i) Their Corresponding angles are equal

(ii) Their Corresponding sides are proportional.

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Similar Triangles

Theorem 1 If a line is drawn parallel to one side of a triangle, then it divides the other two sides in the same ratio.

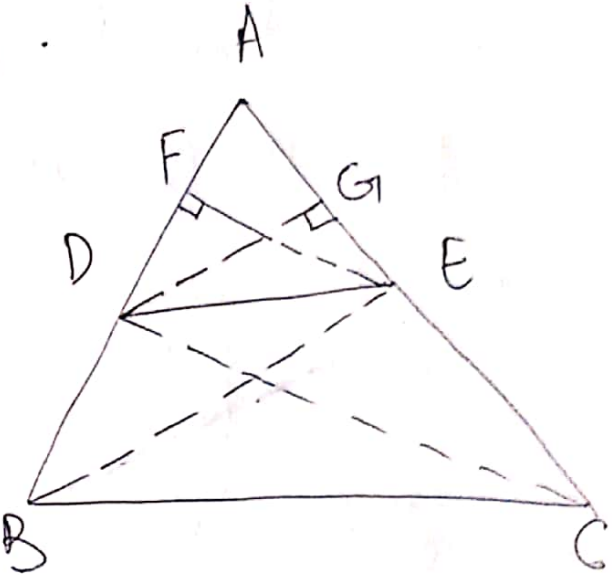
OR

State and prove Basic Proportionality theorem.

OR

State & prove Thales theorem.

Given: A $\triangle ABC$ in which $DE \parallel BC$ and DE intersects AB in D and AC in E.



To prove:- $\frac{AD}{DB} = \frac{AE}{EC}$

Construction: Join BE and CD

Draw $EF \perp AB$ and

$DG \perp AC$.

Proof:- In $\triangle EAD$ and $\triangle EDB$

EF is $\perp$ to both $\triangle EAD$ and $\triangle EDB$

Now Area of $\triangle EAD = \frac{1}{2}$ (Base × height) $= \frac{1}{2} \times AD \times EF$

Again Area of $\triangle EDB = \frac{1}{2}$ (Base × height) $= \frac{1}{2} DB \times EF$

Continue

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Similar △'s

Now $\frac{\text{Area of } (\triangle EAD)}{\text{Area of } (\triangle EDB)} = \frac{\frac{1}{2} \times AD \times EF}{\frac{1}{2} \times BD \times EF}$

$= \frac{AD}{DB}$ — (1)

Similarly $\frac{\text{Area of } (\triangle EAD)}{\text{Area of } (\triangle ECD)} = \frac{AE}{EC}$ — (2)

Since △'s DBE and ECD are on the same base and between the same parallel lines

$\therefore \text{Area } (\triangle DBE) = \text{Area } (\triangle ECD)$ — (3)

From (1) (2) and (3)

we get $\boxed{\frac{AD}{DB} = \frac{AE}{EC}}$

Corollary :- If in △ABC, DE ∥ BC intersects AB in D and AC in E, then prove

(i) $\frac{AB}{AD} = \frac{AC}{AE}$ (ii) $\frac{AB}{DB} = \frac{AC}{EC}$.

Proof :- (i) By B.P.T

$\frac{AD}{DB} = \frac{AE}{EC}$

OR $\frac{DB}{AD} = \frac{EC}{AE}$

Continue

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Similar Δ's

Adding both sides by 1

we get $1 + \frac{DB}{AD} = 1 + \frac{EC}{AE}$

$\Rightarrow \frac{AD + DB}{AD} = \frac{AE + EC}{AE}$

$\Rightarrow \boxed{\frac{AB}{AD} = \frac{AC}{AE}}$.

(ii) By B.P.T

$\frac{AD}{DB} = \frac{AE}{EC}$

Adding both sides by 1

We get $1 + \frac{AD}{DB} = 1 + \frac{AE}{EC}$

$\Rightarrow \frac{DB + AD}{DB} = \frac{EC + AC}{EC}$

$\Rightarrow \boxed{\frac{AB}{DB} = \frac{AE}{EC}}$.

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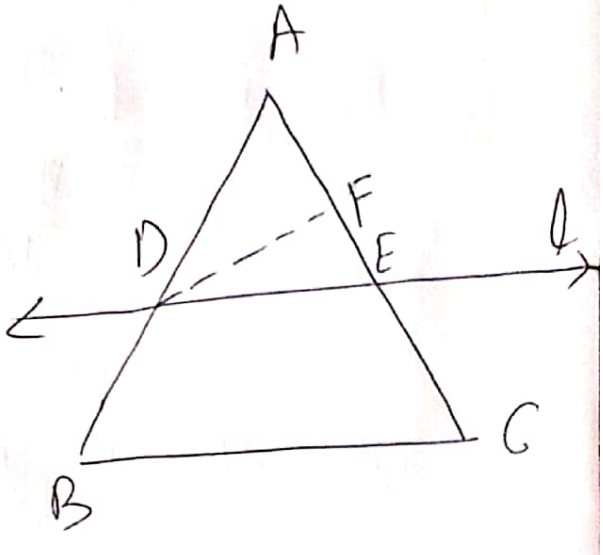
Converse of Baste proportionality theorem:
If a line divides any two sides of a triangle in the same ratio, then the line must be parallel to third side.

Proof: Give :- $\triangle ABC$ and a line l intersecting AB in D and AC in E, such that

$$\frac{AD}{DB} = \frac{AE}{EC}$$



To prove: DE || BC

Proof: If possible Suppose DE is not parallel to BC.
Then draw line through D parallel to BC.
$\Rightarrow$ DF || BC.

Now In $\triangle ABC$, DF || BC

$$\Rightarrow \frac{AD}{DB} = \frac{AF}{FC} \text{ [By B.P.T]} \quad -(1)$$

$$\text{Also } \frac{AD}{DB} = \frac{AE}{EC} \text{ [given]} \quad -(2)$$

from (1) and (2) we get

Continue

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Similar △'s

P → Q.

$$\frac{AF}{FC} = \frac{AE}{EC}$$

add 1 to b/s by (1)

We get $\frac{AF}{FC} + 1 = \frac{AE}{EC} + 1$

$$\Rightarrow \frac{AF+FC}{FC} = \frac{AE+EC}{EC}$$

$$\Rightarrow \frac{AC}{FC} = \frac{AC}{EC}$$

$$\Rightarrow FE = EC.$$

This is not possible and it is possible only when E Coincide with F.

Thus it is Contradiction.

Hence our supposition that DE is not parallel BC is Wrong.

$\therefore$ DE ∥ BC.

Theorem 3 (AAA similarity) If two △'s, Corresponding angles are equal, their corresponding sides are in the same ratio (proportional) and hence the two triangles are similar.

Continue

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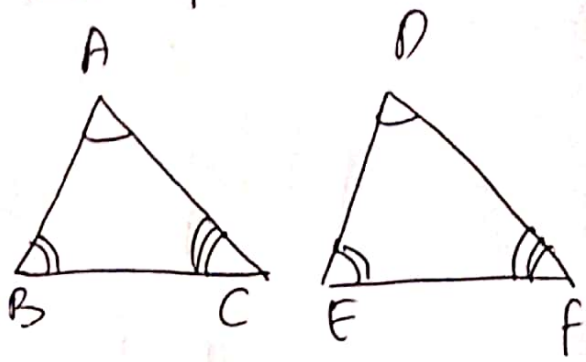
Similar Traingles

Given: In two △'s ABC and △DEF
$\angle A = \angle D$, $\angle B = \angle E$ and $\angle C = \angle F$.



To prove: $\triangle ABC \sim \triangle DEF$

Proof: **Case I:-** When $AB = DE$

$\angle A = \angle D$, $\angle B = \angle F$ & $AB = DE$

$\therefore \triangle ABC \cong \triangle DEF$ [By ASA theorem].

$\therefore$ $AB = DE$, $BC = EF$ and $AC = DF$ [C.P.C.T.C]

OR $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$.

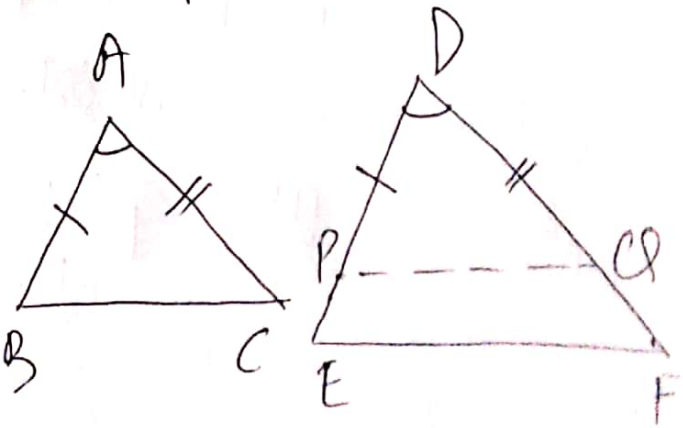
$\Rightarrow$ Sides are proportional.

$\therefore \triangle ABC \sim \triangle DEF$.

Case II When $AB < DE$.

Take a point P on line DE and Q on the line DF such that $AB = DP$ & $AC = DQ$

Join PQ



Now In $\triangle ABC$ and $\triangle DPQ$

$AB = DP$, $AC = DQ$ and $\angle A = \angle D$

Continue

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Similar △'s

$\therefore \triangle ABC \cong \triangle DPQ$ [By SAS Congruence theorem].

$\Rightarrow \angle B = \angle P$ [C.P.C.T.C]

But $\angle B = \angle E$ [given]

$\therefore \angle P = \angle E$

$\Rightarrow PQ \parallel EF$ [since Corresponding ∠s are equal].

$\Rightarrow \frac{DP}{DE} = \frac{DQ}{DF}$ [By B.P.T.

$\Rightarrow \frac{AB}{DE} = \frac{AC}{DF}$ [$\because DP = AB$ & $DQ = AC$]

Similarly $\frac{AB}{DE} = \frac{BC}{EF}$

$\therefore \frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

$\Rightarrow$ Sides are proportional

$\therefore \triangle ABC \sim \triangle DEF$

Case III When $AB > DE$

Take a Point P on DE produced and Point Q on DF produced,

Continue...

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Such that DP = AB, DQ = AC, Join PQ

Sol. In △ABC and △DPQ

AB = DP, DQ = AC,

$\angle A = \angle D$

$\therefore \triangle ABC \cong \triangle DPQ$ [by SAS Congruence].

$\therefore \angle B = \angle P$ [C.P.C.T.C]

But $\angle B = \angle E$

$\Rightarrow \angle P = \angle E$

$\Rightarrow PQ \parallel EF$ [since Corresponding ∠s are equal.

$\therefore \frac{DE}{DP} = \frac{DF}{DQ}$ [By B.P.T]

$\therefore \frac{DE}{AB} = \frac{DF}{AC}$ $(\because AB = DP \text{ and } AC = DQ)$

or $\frac{AB}{DE} = \frac{AC}{DF}$ [Taking reciprocals]

Similarly $\frac{AB}{DE} = \frac{BC}{EF}$

$\therefore \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

Continue

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Similar △'s

⇒ Corresponding sides are proportional

∴ $\triangle ABC \sim \triangle DEF$.

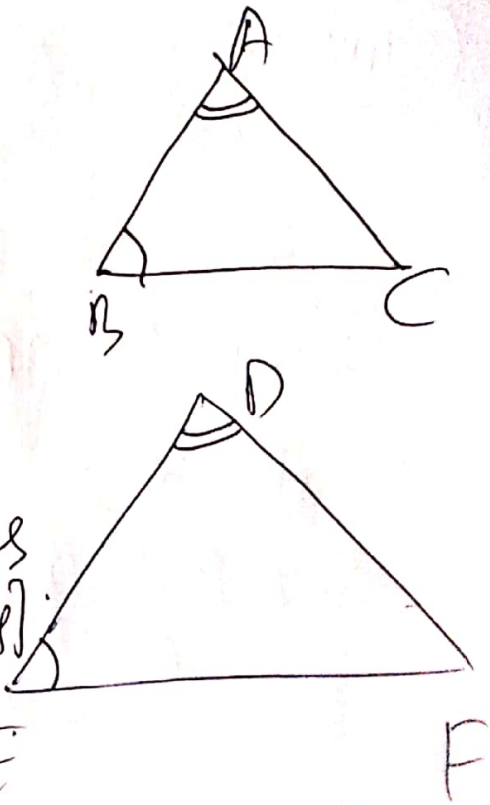
Corollary: (AA similarity): If two angles of one triangle are equal to two angles of another △, then two triangles are similar.

Proof In △ABC & △DEF

$\angle A = \angle D$ [given]

$\angle B = \angle E$ [given]

∴ $\angle C = \angle F$ [Third angles of triangles]



∴ The two triangles are equiangular.

∴ They are similar.

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Similar △'s

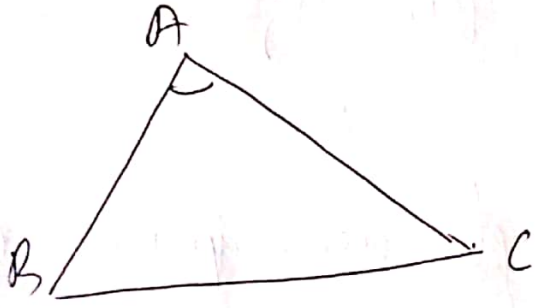
Theorem 4 (SSS Similarity) If in two △'s sides of one triangle are proportional to the sides of the other triangle, then their corresponding angles are equal and hence the two △'s are similar.

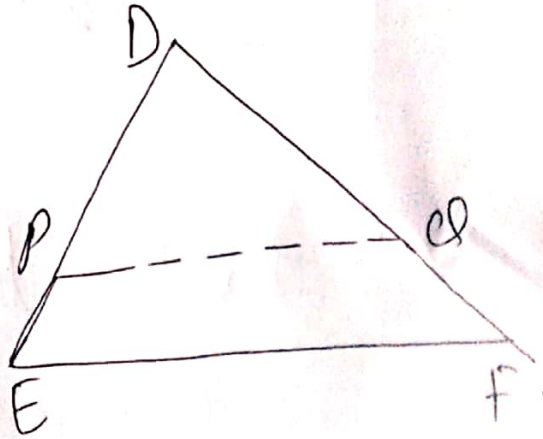
Given:- Two △'s ABC and DEF such that

$$\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}.$$

To prove $\triangle ABC \sim \triangle DEF$.

Construction:- Take a point P on DE and Q on DF such that $DP = AB$ and $DQ = AC$, Join PQ.





Proof $\frac{AB}{DE} = \frac{AC}{DF}$

or $\frac{DP}{DE} = \frac{DQ}{DF}$ $\left[\because AB = DP,\ AC = DQ \text{ By Construction.}\right.$

Continue

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Similar △'s

$\Rightarrow$ PQ ∥ EF [By Converse of B.P.T]

$\Rightarrow$ $\angle P = \angle E$ & $\angle Q = \angle F$ [Corresponding angles]

Now In △DPQ and △DEF

$\angle P = \angle E$, $\angle Q = \angle F$, $\angle D = \angle D$.

$\therefore$ △DPQ ~ △DEF [By AAA Similarity] — (1)

$\therefore \frac{DP}{DE} = \frac{PQ}{EF}$ [Corresponding sides of Similar triangles are proportional]

$\Rightarrow \frac{AB}{DE} = \frac{PQ}{EF}$ — (2) [By Construction DP = AB]

Also $\frac{AB}{DE} = \frac{BC}{EF}$ — (3) [Given]

from (2) and (3) we get

$\frac{PQ}{EF} = \frac{BC}{EF} \Rightarrow PQ = BC$.

Now In △ABC and △DPQ

AB = DP, AC = DQ, BC = PQ

$\therefore$ △ABC ≅ △DPQ [By SSS Congruence Condition]

$\therefore$ $\angle ABC \sim$ △DPQ [∵ Congruent figures] — (4).

from (1) and (4) we get

△ABC ~ △DPQ.

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Similar △'s

Theorem 5 (SAS) Similarity

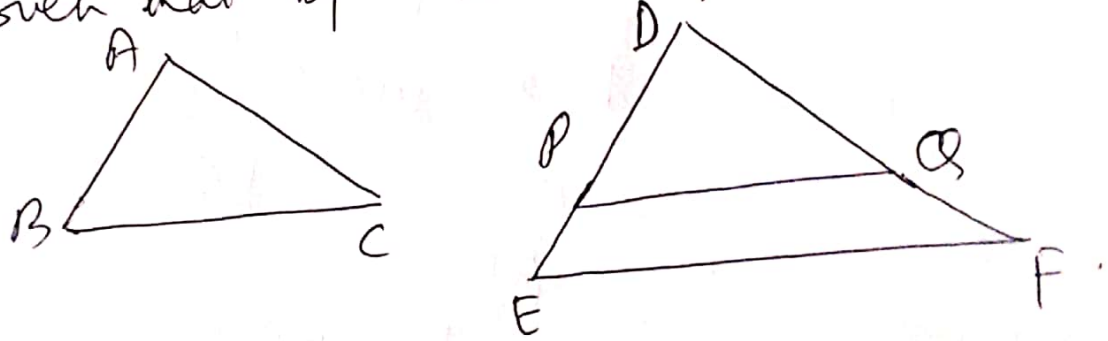
If one angle of a triangle is equal to one angle of other triangle and the sides included these angles are proportional, then the two △'s are similar.

Proof Given:- Two △'s ABC and DEF

$\angle A = \angle D$ and $\frac{AB}{DE} = \frac{AC}{DF}$.

To prove: $\triangle ABC \sim \triangle DEF$.

Construction:- Take point P on DE and point Q on DF, such that $DP = AB$ and $DQ = AC$.



Proof In $\triangle ABC$ and $\triangle DPQ$

$AB = DP$ [By Construct]

$\angle A = \angle D$ [Given]

$AC = DQ$ [By Construction]

∴ By SAS Congruence Condition

$\triangle ABC \cong \triangle DPQ$ — (1)

continue

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Similar △s

Now $\frac{AB}{DE} = \frac{AC}{DF}$ [given]

$\Rightarrow \frac{DP}{DE} = \frac{DQ}{DF}$ [$\because AB = DP$, $AC = DQ$ By Construction]

$\therefore PQ \parallel EF$ [By Converse of B.P.T]

$\therefore \angle P = \angle E$ & $\angle Q = \angle F$ [Corresponding $\angle$s]

Now In $\triangle DPQ$ and $\triangle DEF$

$\angle P = \angle E$ & $\angle Q = \angle F$, $\angle D = \angle D$.

$\therefore \triangle DPQ \sim \triangle DEF$ [By AAA similarity] —(2)

Now from (1) and (2) we get

$\triangle ABC \cong \triangle DPQ$ and $\triangle DPQ \sim \triangle DEF$

$\Rightarrow \triangle ABC \sim \triangle DPQ$ and $\triangle DPQ \sim \triangle DEF$.

$\therefore \triangle ABC \sim \triangle DEF$.

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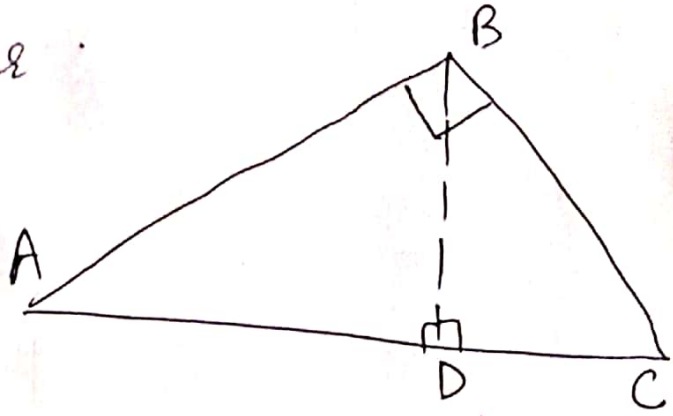
Similar △'s

Theorem 6:- If a perpendicular is drawn from the Vertex of the right angle of a right triangle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole whole triangle and to each other.



Proof:- A right △ABC
right angled at B
BD ⊥ AC

To prove:- △ADB ~ △BDC ~ △ABC

Proof:- In △ABC, ∠ABC = 90° and BD ⊥ AC

Also In △ADB and △ABC

∠A = ∠A [Common]

∠DAB = ∠CAB [each 90°]

∠ADB = ∠ABC [each 90°]

⇒ △ADB ~ △ABC (By AA Similarity)

Sulg △BDC ~ △ABC

∴ △ADB ~ △BDC ~ △ABC

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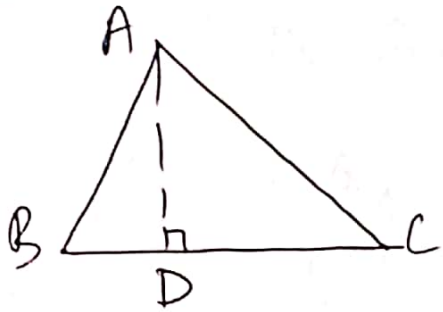
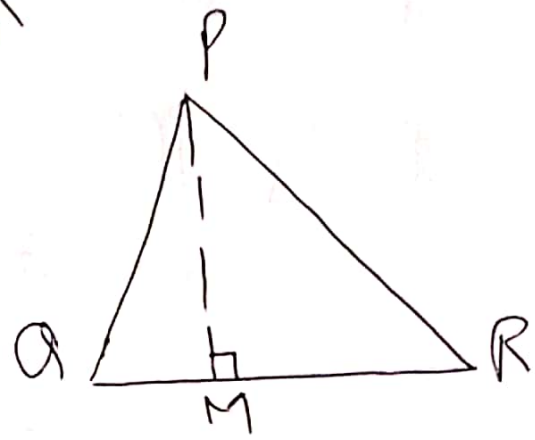
Theorem 7

The ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.

Given: $\triangle ABC \sim \triangle PQR$





To prove:- $\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{AB^2}{PQ^2} = \frac{BC^2}{QR^2} = \frac{CA^2}{RP^2}$

Construction:- Draw $AD \perp B$ and $PM \perp QR$

Proof:- $\triangle ABC \sim \triangle PQR$

$\Rightarrow \frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP}$ [Corresponding sides are proportional] ①

Also $\angle B = \angle Q$ [Corresponding angles of similar △'s are equal]

and $\angle ADB = \triangle PMQ$ [each 90°]

$\therefore \triangle ADB \sim \triangle PMQ$ [by AA similarity]

$\therefore \frac{AD}{PM} = \frac{AB}{PQ}$ [Corresponding sides of similar △'s] ——— ②

Continue...

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Similar Δ's

From (1) & (2) we get

$$\frac{AD}{PM} = \frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP}.$$

Now $$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{\frac{1}{2} \times BC \times AC}{\frac{1}{2} \times QR \times PM}$$

$$= \frac{BC}{QR} \times \frac{AD}{PM}$$

$$= \frac{BC}{QR} \times \frac{BC}{QR} \quad \left[\because \frac{AD}{PM} = \frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP}\right]$$

$$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{BC^2}{QR^2} \quad \text{— (1)}$$

Sub $$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{AB^2}{QR^2} \quad \text{— (2)}$$

& $$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{CA^2}{RP^2} \quad \text{— (3)}$$

from (1) (2) and (3)

$$\boxed{\frac{\text{Area of } \triangle ABC}{\text{Area of } PQR} = \frac{AB^2}{PQ^2} = \frac{BC^2}{QR^2} = \frac{CA^2}{RP^2}}$$

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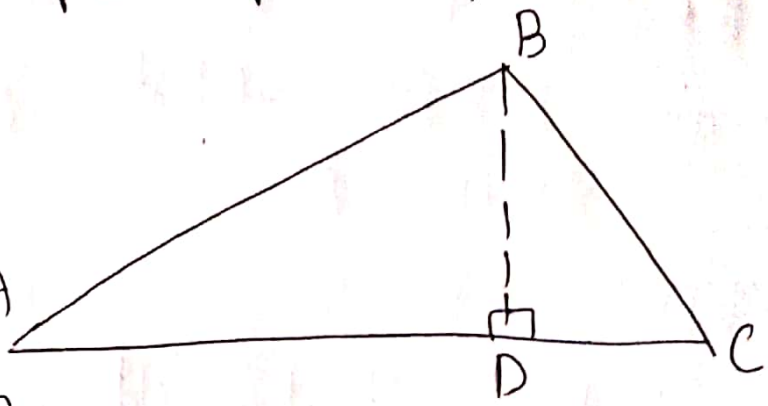
Similar Δ's

Theorem 8:- (Pythagoras theorem) (Baudhayan theorem).

In a right triangle, the square of the hypotenuse is equal to the sum of the squares of other two sides.



Given: $\triangle ABC$ right angled at B.

To prove:- $AC^2 = AB^2 + BC^2$

Construction:- Draw $BD \perp AC$.

Proof:- Since $\triangle ADB \sim \triangle ABC$ [proved].

$$\Rightarrow \frac{AD}{AB} = \frac{AB}{AC}$$ [Corresponding sides of similar Δ's are proportional].

$$AB^2 = AD \times AC \quad \text{---(1)}$$

Also $\triangle CDB \sim \triangle CBA$

$$\frac{CD}{BC} = \frac{BC}{CA}$$ [Corresponding sides of similar Δ's are proportional]

$$\Rightarrow BC^2 = CD \times CA \quad \text{---(2)}$$

Add (1) and (2) we get

$$AB^2 + BC^2 = AD \times AC + CD \times AC = AC \times (AD + CD)$$

$$= AC \times AC = AC^2$$

$$\Rightarrow \boxed{AB^2 + BC^2 = AC^2}$$

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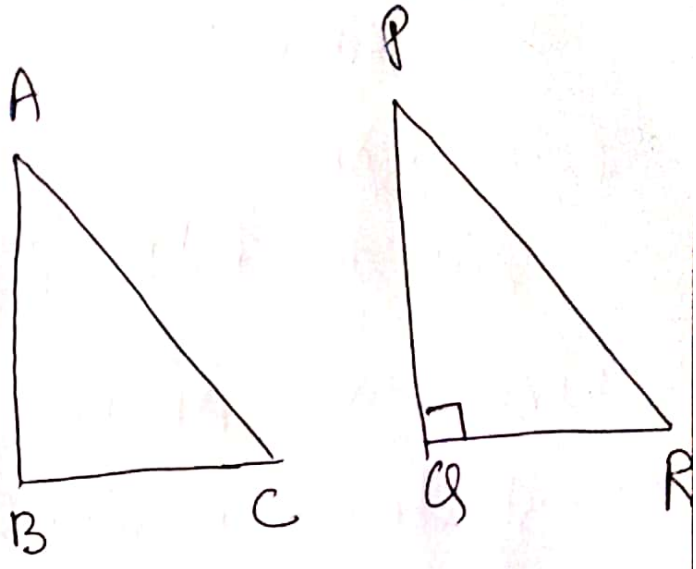
Similar △'s

Theorem 9:- (Converse of Pythagoras theorem).
In a triangle, if the square of one side is equal to the sum of the square of the other two sides, then the angle opposite the first side is a right angle.

Given:- $\triangle ABC$ such that
$AB^2+BC^2=AC^2$

To prove:- $\angle B = 90^\circ$

Construction:- Construct a right $\triangle PQR$ right angled at Q such that $PQ = AB$
$QR = BC$



Proof:- In $\triangle PQR$

$PR^2 = PQ^2+QR^2$ [Pythagoras Theorem]

$\Rightarrow PR^2 = AB^2+BC^2$ [$\because PQ=AB$ & $QR=BC$] — (1)

Also $AC^2 = AB^2+BC^2$ — (2)

from (1) and (2) we get

$AC^2 = PR^2$

$\Rightarrow AC = PR$

$\Rightarrow \triangle ABC \cong \triangle PQR$

$\therefore \angle B = 90^\circ$ [Corresponding angles of similar △'s are equal].

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Introduction:- Carbon is the non-metallic element and is the first member of group-14 of P-Block. It is not very abundant element in the earth's crust and constitutes only about 0.27% of the earth's crust. It occurs both in the free and combined states. In Free State it exists as diamond, graphite and coal. In the combined states it is present in large no.of minerals as carbonates e.g. $CaCO_3$. It also occurs in some complex compounds like carbohydrates, fats,etc. Air also contains 0.03% of carbon as carbon dioxide. All organic compounds are infact carbon compounds in which the carbon atoms are linked by long chains of covalent bonds.

Chemical Bonds:- The force that holds together different atoms in a molecule is called chemical bond.

Types of Bonds:

1. **Ionic or Electrovalent Bond:-** It is that bond which is formed by the complete transfer of electron from one atom to the other. Transfer of electrons is from electro positive to electro negative species. e.g.

Formation of sodium chloride

Sodium has electronic configuration 2, 8,1. By losing one electron of its valence shell, it acquires the inert gas configuration 2, 8 (similar to that of neon) and form sodium ion (Na^+).

$$Na\bullet \rightarrow Na^+ + e^-$$
$$2,8,1 \qquad 2,8$$

On the other hand, chlorine having electronic configuration 2, 8, 7 accepts one electron released by sodium to complete its octet and acquire stable configuration of argon and form chloride ion (Cl^-).

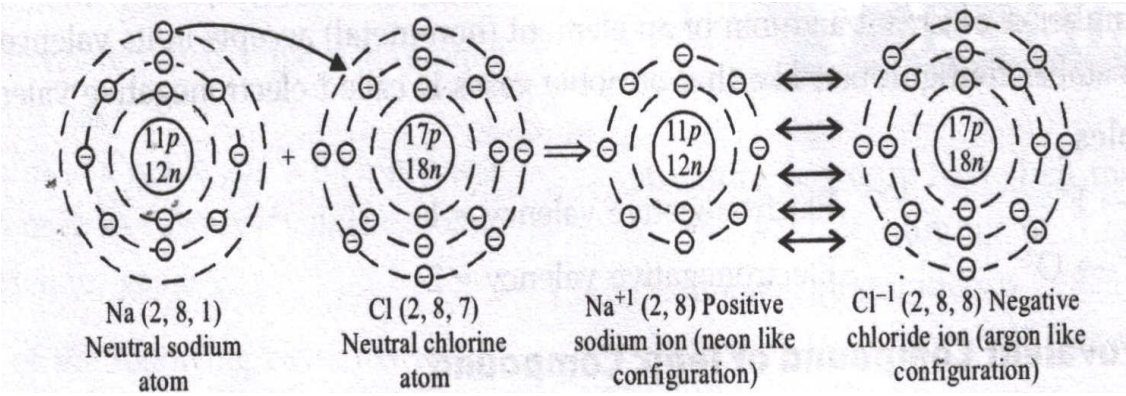
$$:\ddot{Cl}\bullet: + e^- \rightarrow [Cl]^-$$
$$2,8,7 \qquad 2,8,8$$

Now, we have two ions, one is positively charged sodium ion and the other is negatively charged chloride ion. As they approach each other, they are held together by strong electrostatic forces of attraction and the bond formed between them is electrovalent bond.

Thus, formation of sodium chloride takes place

$$[Na]^+ + [Cl]^- \rightarrow [Na]^+[Cl]^- \quad \text{or} \quad Na^+ - Cl^-$$

↓ electrovalent bond


11p 12n
17p 18n
11p 12n
17p 18n
Na (2, 8, 1) Neutral sodium atom
Cl (2, 8, 7) Neutral chlorine atom
Na+1 (2, 8) Positive sodium ion (neon like configuration)
Cl−1 (2, 8, 8) Negative chloride ion (argon like configuration)

2. **Formation of magnesium chloride :** Magnesium has electronic configuration 2, 8, 2. It loses 2 electrons from the valence shell to acquire the nearest noble gas (neon) configuration and forms Mg^{2+} ion.

$$\underset{2,8,2}{Mg:} \rightarrow \underset{2,8}{Mg^{2+}} + 2e^-$$

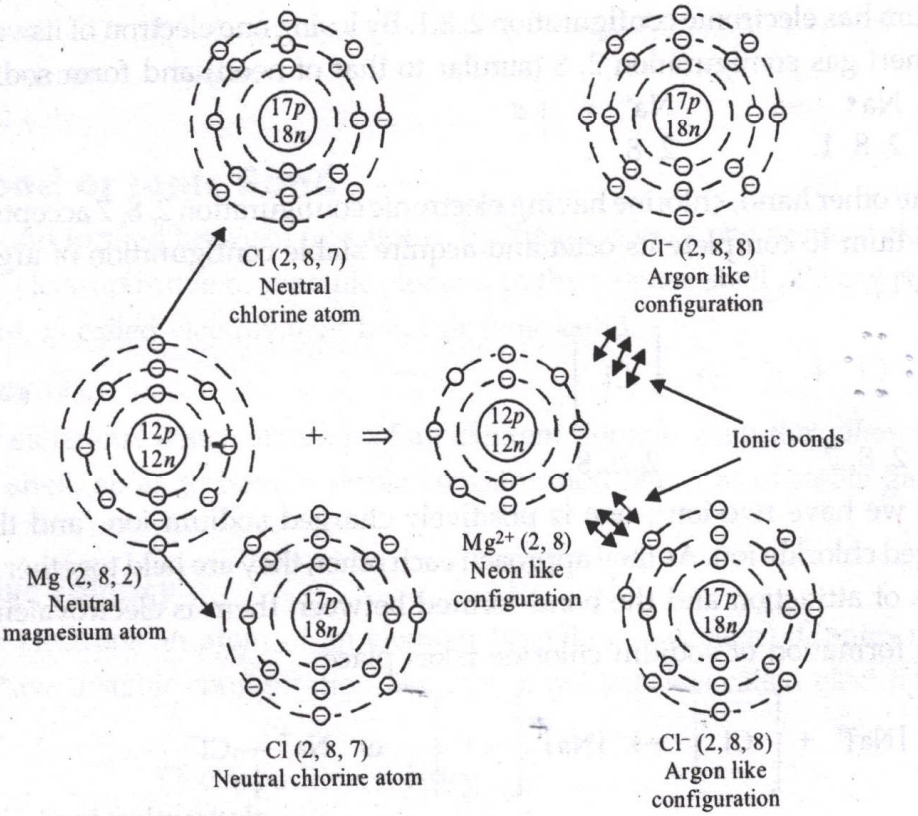
Chlorine has electronic configuration 2, 8, 7, it needs to gain only one electron in the valence shell to acquire the nearest noble gas (argon) configuration and forms chloride ion.

$$\underset{2,8,7}{Cl} + 1e^- \rightarrow \underset{2,8,8}{\left[Cl\right]^-}$$

Now, as Mg atom has to lose two electrons and a chlorine atom can gain only one electron, therefore, two chlorine atoms will be required to accept the two electrons, one by each chlorine atom. Thus, the transference of two electrons from one Mg atom to two Cl atoms may be represented as follows.

$$\underset{\substack{(2,8,2)\\ \text{Magnesium atom}}}{Mg} + \underset{\substack{(2,8,7)\\ \text{Two Chlorine atoms}}}{2\ Cl} \rightarrow \underset{\substack{(2,8)\\ \text{Magnesium ion}}}{[Mg]^{2+}} \underset{\substack{(2,8,8)\\ \text{Two Chloride ions}}}{2\left[Cl\right]^-} \quad \text{or} \underset{\substack{\text{Magnesium}\\ \text{Chloride}}}{MgCl_2}$$

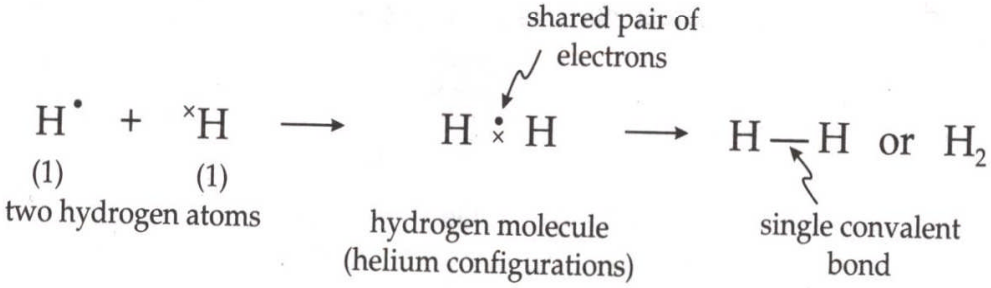
The above steps may be represented directly as follows:


17p 18n
Cl (2, 8, 7) Neutral chlorine atom
Cl⁻ (2, 8, 8) Argon like configuration
12p 12n
Mg (2, 8, 2) Neutral magnesium atom
+ ⇒
Mg²⁺ (2, 8) Neon like configuration
Ionic bonds
Cl (2, 8, 7) Neutral chlorine atom
Cl⁻ (2, 8, 8) Argon like configuration

2. **Covalent Bond:-** This bond is formed between two atoms (same or different) by mutual sharing and contribution of electrons. e.g.

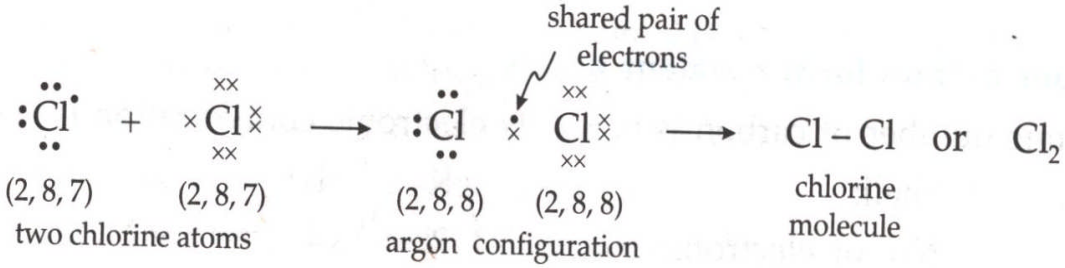
How is hydrogen molecule formed?

The electronic configuration of hydrogen is $\overset{K}{1}$. Thus, an atom of hydrogen contains only one electron in its outermost (and the only) shell. To obtain the stable configuration of helium (the nearest noble gas), the hydrogen atom requires one more electron. Two hydrogen atoms achieve stability by mutual sharing of one pair of electrons as shown below:


shared pair of electrons
H• + ×H → H:×H → H—H or H2
(1) (1)
two hydrogen atoms
hydrogen molecule (helium configurations)
single convalent bond

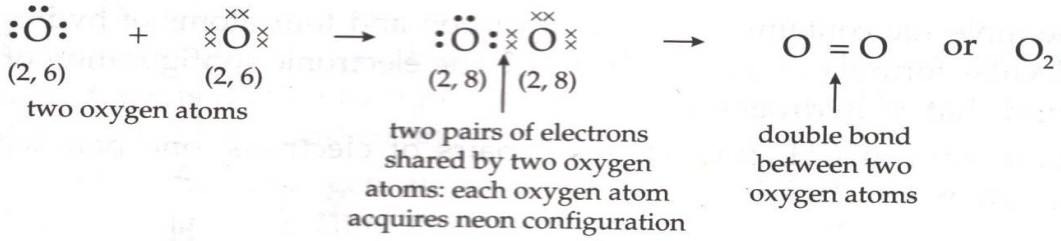
How is chlorine molecule formed?

The electronic configuration of chlorine is 2, 8, 7. A chlorine atom has seven valence electrons. Thus, chlorine atom requires only one electron to acquire a stable configuration of argon. Two chlorine atoms achieve stable configurations by mutual sharing of one pair of electrons, viz.,


shared pair of electrons
:Cl• + ×Cl: → :Cl :Cl: → Cl – Cl or Cl2
(2, 8, 7) (2, 8, 7)
two chlorine atoms
(2, 8, 8) (2, 8, 8)
argon configuration
chlorine molecule

How is an oxygen molecule formed?

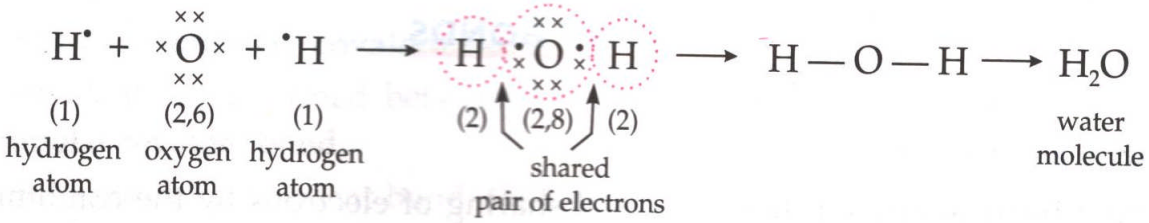
The electronic configuration of oxygen is 2, 6. Each oxygen atom requires two more electrons to achieve a stable configuration. Two oxygen atoms combine together to form a molecule of oxygen by mutual sharing of two pairs of electrons.


:Ö: + :Ö: → :Ö::Ö: → O = O or O2
(2, 6) (2, 6)
two oxygen atoms
(2, 8) (2, 8)
two pairs of electrons shared by two oxygen atoms: each oxygen atom acquires neon configuration
double bond between two oxygen atoms

How is a water molecule formed?

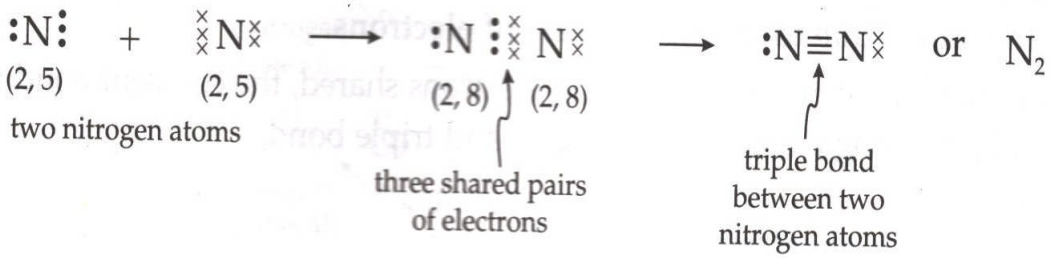
The electronic configuration of hydrogen is $\overset{K}{1}$ and that of oxygen is $\overset{K}{2}\,\overset{L}{2}$. Thus, each hydrogen atom requires one more electron to achieve the stable configuration of helium.

An atom of oxygen requires two electrons to achieve the stable configuration of neon. Thus, one atom of oxygen shares one electron pair with each of the two hydrogen atoms.



How is a nitrogen molecule formed?

Electronic configuration of nitrogen is (2, 5). Thus, each nitrogen atom needs three more electrons to achieve stable configuration. To do so, two nitrogen atoms share three pairs of electrons to form a molecule of nitrogen (N_2).

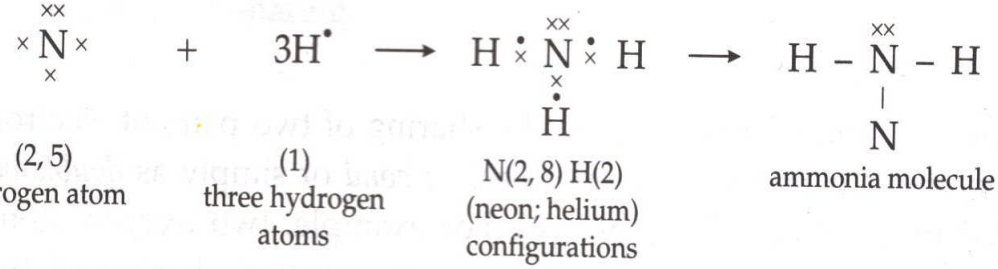


How is an ammonia molecule formed?

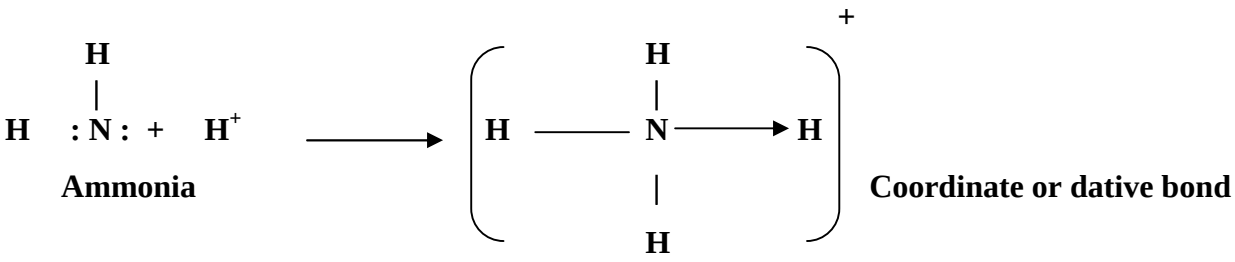
The electronic configuration of nitrogen and hydrogen are,

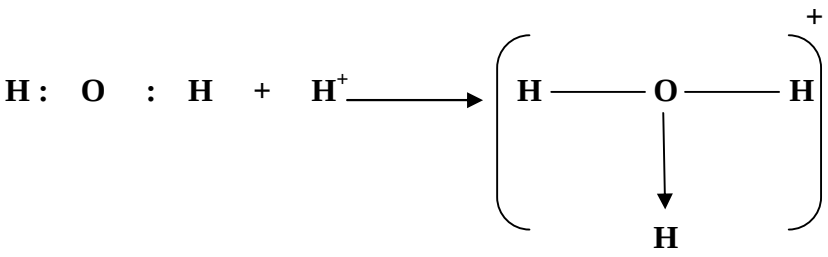
Nitrogen 2, 5 and Hydrogen 1

Thus, each nitrogen atom needs 3 electrons to complete its octet, while each hydrogen atom would need only 1 electron to acquire the stable configuration of helium (the nearest noble gas). To do so, three hydrogen atoms tend to share one electron pair each with the nitrogen atom.



3. **Coordinate/ Dative Bond:-** This bond is formed between the two atoms in which the contribution of electron pair is made by one of them while sharing is done by both . e.g.





Q Why car bon always forms only covalent bond?

Ans. Carbon always forms covalent bonds because of the following reasons:-

1. **It can't gain four electrons:-** Carbon can't gain 4 electrons to form C^{4-} ion because this anion would be highly unstable due to which large amount of energy is required to overcome the forces of repulsion between 4 electrons being added and the six electrons already present in the carbon atom.

2. **It can't lose 4 electrons:-** Carbon can't lose 4electrons to form C^{4+} ion. The cation would be highly unstable due to large amount of energy required to remove 4 electrons from carbon atom. Thus, carbon can neither gain nor lose 4 electrons to acquire stability. The only way by which it can acquire stability is by sharing the valence electrons with the electrons of other carbon atoms or atoms of other elements.
   Not just carbon, many other elements also form molecules by sharing of valence electrons. Each atoms contributes equal number of electrons for sharing.These shared electrons form shared pairs which belong to outermost shells of both the combining atoms.

Electrovalency:- The no. of electrons which an element either gains or looses in the formation of ionic bond.
Covalency: The no. of electrons that an atom shares in the formation of covalent bond.

Homo-atomic molecules:- They are the molecules which made up of only one kind of atoms e.g. H_2, O_2, N_2.

Hetero-atomic molecules:- They are the molecules which made up of more than one kind of atoms e.g. CH_4, NH_3.

Lone Pair:- The pair of electrons in a molecule which is not involved in the bond formation.

Shared Pair:- This is the pair of electrons in a molecule which is involved in the bond formation.

Types of Covalent Bonds:

1. **Single covalent bond:-** If each atom contributes one electron for the bond, the covalent bond formed is called a single covalent bond and is represented by a single line (—) e.g. H – H (H_2 molecule)

2. **Double Covalent Bond:-** This bond is formed if each atom contributes 2 electrons and is represented by a double line (=) e.g. O = O (O_2 molecule)

3. **Triple Covalent Bond**:- This bond is formed, if each atom contributes 3 electrons. It is represented by a triple line (≡) e.g. N ≡ N (N_2 molecule)

4. **Covalent Compounds**:- These compounds are formed by sharing of electrons.

Properties of covalent compounds:

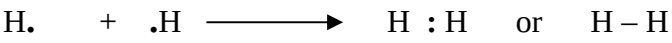
1. These are formed by mutual sharing of electrons between the two atoms.
2. These belong to non-metals.
3. The covalent compounds may be solid, liquid or gas e.g. CH_4 is a gas, ethanol is a liquid, naphthalene is a solid.
4. The melting and boiling points of the covalent compounds are generally low due to weak intermolecular force of attraction.
5. They are generally bad conductors of electricity.
6. Covalent compounds being non-polar are generally soluble in non-polar solvents like ethanol, except urea, carbohydrates and alcohols which are also soluble in water.
7. Covalent compounds undergo molecular reactions which are slow and never proceed to completion.

Q Differentiate between ionic and covalent compounds.

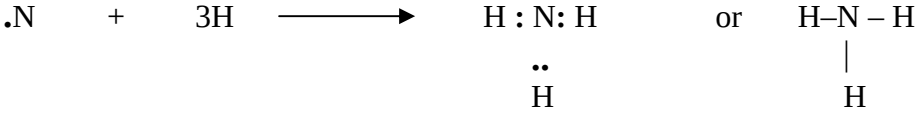
Ionic compounds	**Covalent compounds**
1. They are formed by complete transfer of electrons from one atom to the other. They are formed between atoms of metals and non-metals.	1. They are formed by mutual sharing of electrons between two atoms. They are formed between atoms of non-metals.
2. They are generally solids.	2. They may be solid, liquid or gases e.g. naphthalene is solid, methane is a gas and ethanol is a liquid.
3. The melting and boiling points are high due to strong force of attraction between positive and negative ions.	3. The melting and boiling points are low due to weak intermolecular forces of attraction.
4. They are more soluble in polar compounds (polar solvents) e.g. water.	4. Being non-polar, they are soluble in non-polar solvents e.g. ethanol, etc.
5. In the solid state, they don't conduct electricity, but do so in their aqueous or molten states.	5. They don't contain ions and hence are generally bad conductors of electricity.

Q Examples of formation of covalent compounds:

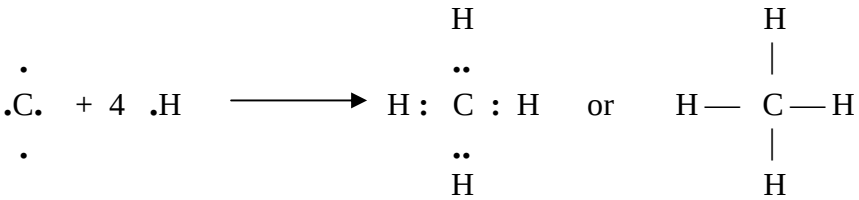
1. **Formation of hydrogen molecule:-** The atomic no. of hydrogen is 1. Hence, hydrogen has one electron in its K-shell and thus requires one more electron to complete the K-shell. So, two hydrogen atoms share one electron each to form a molecule of hydrogen, H_2. By doing so, each hydrogen atom attains the stable electronic configuration of the nearest noble gas, helium, which has 2 electrons in its K-shell. We can depict the formation of diatomic molecule of H_2 using dots or crosses to represent the valence electrons involved in sharing. Such structures are called electron dot structures.



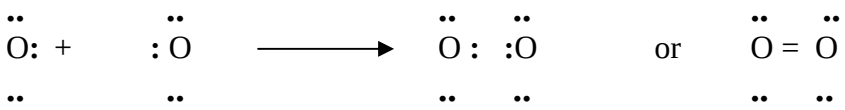
2. **Formation of Ammonia molecule:-** The atomic no. of nitrogen is 7. It has 5 electrons in its valence shell. Therefore, it needs 3 more electrons to acquire the stable electronic configuration. On the other hand, atomic no. of hydrogen is 1. Therefore, it has one electron in the valence shell and thus needs one more electron to acquire the stable electronic configuration.
   In order to complete its octet, nitrogen shares 3 of its valence electrons, with one electron each of 3 hydrogen atoms to form a molecule of ammonia (NH_3). By doing so, each hydrogen atom completes its duplet.



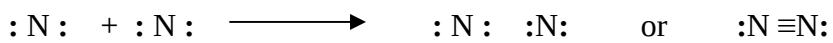
3. **Formation of methane molecule**:- Methane is the simplest carbon compound. The atomic no. of carbon is 6 and it has 4 electrons in its valence shell. Hence, it needs 4 more electrons to complete its octet by acquiring the stable electronic configuration.
   On the other hand, the atomic no. of hydrogen is 1. It has one electron in the K-shell and thus needs 1 more stable electronic configuration.
   In order to complete its octet, carbon shares its 4 valence electrons, with 1 electron each of 4 hydrogen atoms to form a molecule of methane. By doing so, each hydrogen atom completes its duplet.



4. **Formation of oxygen molecule:-** The atomic no. of oxygen is 8. It has 6 electrons in its valence shell.Therefore, it needs 2 more electrons to complete its octet. So each atom of oxygen shares 2 electrons with another atom of oxygen to form a diatomic molecule of oxygen (O_2). By doing so, each oxygen atom acquires the stable electronic configuration.



5. **Formation of nitrogen molecule:-** The atomic no. of nitrogen is 7. Thus, it has 5 electrons in its valence shell. Therefore, it needs 3 more electrons to complete its octet. So, each atom of nitrogen shares 3 electrons with another atom of nitrogen to form a diatomic molecule of nitrogen. By doing so, each nitrogen atom acquires the stable electronic configuration.



Versatile nature of carbon:

There are four main reasons for the versatile nature of carbon:-

1. **Catenation:-** The unique property of self-linking of carbon atoms through covalent bonds to form long, straight or branched chains and rings of different sizes is called catenation. It is due to small size, unique electronic configuration and greater strength of C-C bonds. Its, the maximum tendency of carbon for catenation which is responsible for existence of a large no.of carbon compounds.

2. **Tetra-covalency of carbon:-** Carbon has a valency of 4. It is able to form 4 single covalent bonds at one time and due to its small size, the nucleus of carbon atom can hold its shared pairs of electrons firmly. As a result, the bonds that carbon forms with most of other elements such as hydrogen, oxygen are very strong and thus, making these compounds exceptionally stable. This further increases the no. of carbon compounds.

3. **Tendency to form multiple bonds:-** Due to small size, carbon also forms multiple (double and triple bonds) bonds with the other carbon atoms, oxygen, sulphur, etc. This multiplicity of carbon-carbon, carbon- oxygen, carbon-nitrogen, bonds further increases the no. of carbon compounds.

4. **Isomerism:-** Another reason for the huge no. of carbon compounds is the phenomenon of isomerism. If a given molecular formula represents two or more structures having different properties, the phenomenon is called as isomerism and the structures are called isomers.

Allotrophic Forms Of Carbon:

The phenomenon of existence of element in two or more forms which have different physical properties but identical chemical properties is called allotrophy and the different forms are called allotrophic forms. All the allotropes are the purest form of an element. They have thus the same chemical properties. The physical properties are different due to different arrangement of atoms in the allotrophic forms.

Carbon occurs in three allotrophic forms:

1. Diamond 2. Graphite 3. Fullerenes

1. Diamond:-

Occurrence:- Allotroph Diamond occurs in nature (South Africa, Australia, Russia, etc.) They have also been synthesized by subjecting pure carbon to very high pressure (50,000 – 60,000 atmospheres) and temperature (1873 K). The synthetic diamonds are small in size but are otherwise indistinguishable from natural diamonds.

Structure:- In diamond, each carbon-atom is attached to 4 other carbon atoms by strong single covalent bonds which are 1.54^0 long (154Pm). The 4 surrounding carbon atoms lie at the four vertices of a regular tetrahedron. The angle between any two adjacent carbon atoms is $109^0 – 28^/$ which is also called the tetrahedral angle. This tetrahedral arrangement of carbon atoms gives diamond a rigid 3-D network structure. Thus, a crystal of diamond is a giant molecule consisting of only carbon atoms.

Physical Properties:-

i) **Hardness:-** The three-dimensional network structure of diamond makes it the hardest natural substance known.

ii) **High density:-** Due to network structure, the carbon atoms in diamond are closely packed and hence diamond has a high density (3.51 g/cm^3).

iii) **High melting point:-** A large amount of energy is needed to break the network structure of diamond. Therefore, the melting point of diamond is quite high (3930^0C or 4203K).

iv) **Electrical and thermal conductivity:-** Since all the four valence electrons are firmly held in

Carbon - Carbon single bonds, there are no free electrons in a diamond crystal. Therefore, diamond is a bad conductor of electricity. However, it has the highest thermal conductivity of any known substance. It is because of this reason that the diamond tipped tools do not overheat and hence are extensively used for drilling and cutting purposes.

v) **Transparency:-** Because of high refractive indexes (2.5), diamond can refract light. As a result, diamonds are transparent substances.

Uses:

1. Because of hardness, diamonds are used for cutting glass, making borers for drilling rocks and for making abrasives.
2. Diamonds are used for making dies for drawing thin wires from metals.
3. When a diamond is cut and polished, brilliant light is refracted from its surfaces.That is why diamonds are used for making precious gems and jewellery.
4. Sharp edged diamonds are used as a tool by eye surgeons to remove cataract from eyes with great precision.

Graphite:

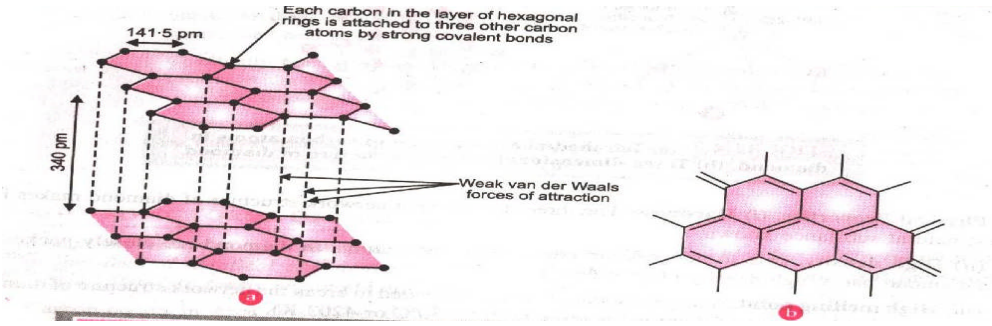
It is a greyish black substance.

It occurs in nature (China, South Korea, Russia, India). It is also prepared artificially from carbon by Aschesion's Process. It can be described by the formula C_n where n is the large integral number.

Ascheno's Process:- In this process, we take a furnace which is filled by fire bricks so that it can withstand high ranges of temperature. We take coke and sand (SiO_2) in this furnace. In addition to this, we take two electrodes made up of tungsten. One of the electrodes is connected to positive terminal and another is connected to negative terminal. We allow these electrodes to come close to each other so that spark gets produced. At the same time, reaction gets started and furnace is closed for 2-3 days so that the reaction continues. After that a greyish black substance is formed. This substance is called graphite. This reaction takes place at 2273-2773K.

Structure:

Graphite actually consists of sheets or layers of carbon atoms. Each C-atom in a graphite layer is bounded to three other C-atoms in the same plane forming hexagonal rings.To satisfy the valency of C-atom, each hexagonal ring has three alternate single and double bonds. Thus, graphite has a 2D layered structure consisting of no. of benzene rings, fused together. The various layers are held together by weak Vander Waal's force of attracting. The distance between any two successive layers is 340 pm and the distance between two adjacent carbon atoms is 141.5 pm.


Each carbon in the layer of hexagonal rings is attached to three other carbon atoms by strong covalent bonds
141·5 pm
340 pm
Weak van der Waals forces of attraction
a
b

Properties:

i) **Low density:-** Due to wide spacing between the two layers, the carbon atoms in graphite are less closely packed and hence the density of graphite is much lower than that of diamond (2.22 gm/cm^3).

ii) Graphite is soft and a good lubricant. The various layers of carbon atoms in graphite are held together by weak Vander wall's forces of attraction. Therefore, one layer can slide over the other. This makes graphite soft and a good lubricant.

iii) It is a good conductor of heat and electricity.

iv) It is insoluble in water.
v) It burns on strong heating to form CO_2.
vi) Graphite has melting and boiling point lower than that of diamond because of layered structure.

Uses:

1. It is used as a lubricant in heavy machines.
2. It is used for making electrodes for dry cells.
3. It is used for making the cores of lead pencils.
4. It is used in electroplating.

Q Distinguish between Diamond and Graphite.

Diamond	Graphite
1. It has a 3-D structure and each carbon atom is attached to 4 other carbon atoms.	1. It has a 2-D structure and each carbon atom is attached to 3 other carbon atoms.
2. It is bad conductor of electricity but good conductor of heat.	2. It is good conductor of both heat and electricity.
3. It is the hardest substance known.	3. It is soft and greasy.
4. It is the transparent substances and has high refractive index.	4. It is opaque black substance.
5. It is chemically un-reactive.	5. It is reactive.

Fullernes:

In 1985, scientists created a new allotrophic form of carbon, by heating graphite to extremely high temperature. This was called as fullerene. It is an allotroph of carbon containing even no. of carbon atoms ranging from 60-350. The C_{60} fullerene is the most stable and was first to be identified. It contains 60 carbon atoms which are arranged in the shape of a football. These 60 carbon atoms are arranged in interlocking hexagonal and pentagonal rings of carbon atoms. It contains 20 hexagonal rings (six-membered rings) and 12 pentagonal (five-membered rings). The 6 membered rings are fused to both 6 membered and 5 membered rings. But 5 membered rings are fused only to 6 membered rings. The structure of this allotroph resembles the framework of dome shaped halls designed by American architect, Buckminster Fuller. So, they are also called as Buckminster Fullerenes. The Fullerenes have been found to be present in outer space between stars. They have also been found to exist in nature in the meteorite which had fallen in Germany and in ancient rocks which occur in New Zealand and Russia.

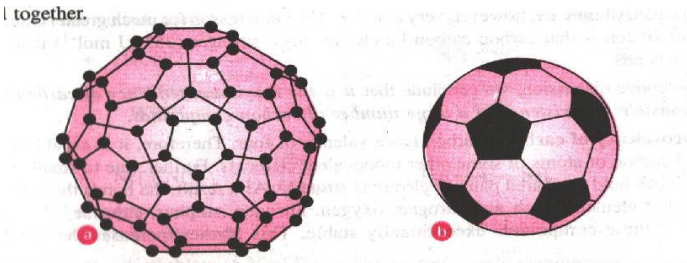
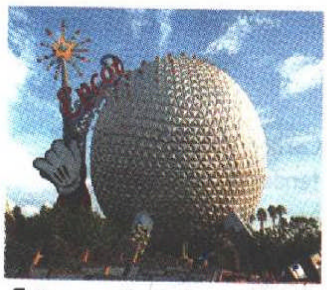


FIGURE 4.9 (a) Structure of buckminster fullerene (C_{60}) (b) Comparism with a football consisting of five and six membered rings.


Fullerenes have been named after Buckminster Fuller's geodesic dome

Preparation of fullerenes

Buckminster fullerene can be prepared by either of the following methods:

- By electrically heating a graphite rod in an atmosphere of helium.
- By vaporizing graphite by using laser.

Fullerenes having the formulae C_{70}, C_{90} and C_{120} have been discovered. Some fullerene-based compounds containing atoms of noble gases, and nitrogen as well as He and Ne molecules, on cooling

show superconductivity. K_3C_{60} becomes superconductor at 18 K. Rb_3C_{60} and Rubidium-Thallium-C_{60} compound becomes superconducting between 30 – 45 K.

Properties:

i) It is a dark solid at room temperature.

ii) It is neither very hard not very soft.

iii) It is a very small molecule containing 60-350 carbon atoms.

Uses:

The expected uses of fullerenes and related compounds are:-

- as superconductors
- as semiconductors
- as lubricants and catalysis
- as electric wires
- as fibres to reinforce plastics
- as a cure for AIDS

Earlier concept of organic and inorganic compounds:-

The compounds which were isolated directly or indirectly from living organisms were called organic compounds and the branch of chemistry which deals with the study of these compounds was called organic chemistry e.g. urea, sugar, oils, etc.

The compounds which were isolated from non-living sources such as rocks and minerals were called inorganic compounds and the branch of chemistry which deals with the study of these compounds was called inorganic chemistry e.g. common salt, Z_nSO_4, C_uSO_4, etc.

Vital Force Theory:

Until early 19th century, it was believed that organic compounds can't be prepared in the laboratory, but can only be isolated from living organism (animals and plants). On the basis of this belief Berzelius, a Swedish chemist, in 1815 proposed vital force theory. According to this theory, "Organic compounds are produced only under the influence of some mysterious force existing in the living organisms. This mysterious force was called the vital force."

Wohler's Synthesis:

In 1828, F. Wohler, a German chemist, prepared urea, a well-known organic compound in the laboratory. He prepared urea by heating an aqueous solution of two inorganic compounds, ammonium chloride (NH_4Cl) and Potassium cyanate (KCNO). Double decomposition reaction took place and another inorganic compound ammonium cyanate (NH_4CNO) was formed. This compound, being unstable, on further heating underwent a rearrangement to form the well-known compound called urea.

$$NH_4Cl + KCNO \xrightarrow[\text{Double decomposition reaction}]{\text{heat}} NH_4CNO + KCL$$

$$NH_4CNO \xrightarrow[\text{rearrangement}]{\text{heat}} H_2N-\overset{\overset{O}{\|}}{C}-NH_2$$

This synthesis gave a death blow to vital force theory and clearly demonstrated that no mysterious force was required in the formation of organic compounds in the laboratory.

Modern Definition of Organic Compounds.

Compounds of carbon containing usually hydrogen and one or more other elements such as oxygen, nitrogen, phosphorous, etc. are called as organic compounds except carbon-dioxide, carbon monoxide, carbonates and bicarbonates which although contain C but are still studied under inorganic compounds.

Q What are hydrocarbons? How are they have been classified.

Ans. The simplest organic compound containing carbon and hydrogen are called hydrocarbons.
Hydrocarbons are of two types
i. Saturated and ii. Unsaturated

Saturated hydrocarbons: are those in which all the carbon atoms are linked to one another by only single bonds. i.e. the carbon valences are fully satisfied. These compounds contain only C-C and C-H types of bonds. Since they are relatively inert towards most of the chemical reagents under ordinary conditions, they are called paraffin's (Latin parum-little affins-affinity) The IUPAC name for these compounds is alkanes and they are represented by a general formula C_nH_{2n+2} where n = 1,2,3,4…

N.	Formula	Common Name	IUPAC Name
1	CH_4	Methane	Methane
2	C_2H_6	Ethane	Ethane
3	C_3H_8	Propane	Propane
4	C_4H_{10}	n- Butane	Butane
5	C_5H_{12}	n- pentane	Pentane
6	C_6H_{14}	n-Hexane	Hexane
7	C_7H_{16}	n-Heptane	Heptane
8	C_8H_{18}	n-Octane	Octane
9	C_9H_{20}	n- Nonane	Nonane
10	$C_{10}H_{22}$	n-Decane	Decane

Unsaturated Hydrocarbons : A hydrocarbon in which the two c-atoms are connected by a "double bond" or a "triple bond" is called an unsaturated hydrocarbon. These are further classified into two types.

i. Alkenes or Olefins (containing "double bond")
ii. Alkynes or Acetylenes ("triple bond")

Alkenes or Olefins: - Unsaturated hydrocarbons containing C=C bond in their molecule are called alkenes. They are also called olefines (Latin, oleum = oil, ficare = to make) because their lower members form oily products on treatment with chlorine or bromine.
They are represented by a general formula $C_n H_{2n}$, where n= 2,3,4.....

Names of alkenes:

1. Common name:- Alkane-ane + ylene = Alkylene.
2. IUPAC name: Alkane - ane + ene = alkene

The molecule formula, common name and IUP AC name of first six alkenes are –

N	Formula	Common Name	IUPAC Name
1	CH_2(Unstable)	Methylene	Methene
2	C_2H_4	Ethylene	Ethene
3	C_3H_6	Propylene	Propene

4	C_4H_8	Butylene	Butene
5	C_5H_{10}	Pentylene	Pentene
6	C_6H_{12}	Hexylene	Hexene

Alkynes or Acetylene

Unsaturated hydrocarbon containing a Carbon-Carbon triple bond are called alkynes. They are also called acetylenes after the name of the first member of this series called acetylene, HC≡CH, and a triple bond is often referred to as the acetylenic linkage.

They are represented by a general formula C_nH_{2n-2} , where n = 2,3,4 ...

Names of alkynes:

1. Common names: Acetylene and its alkyl derivatives.
2. IUPAC name: Alkane- ane+yne= Alkyne.

The common and IUPAC names of a few simple alkynes are given below :

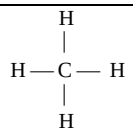
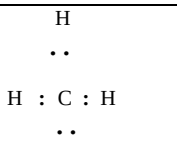
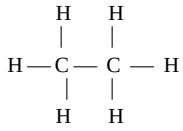
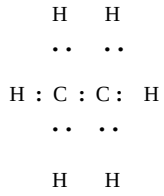
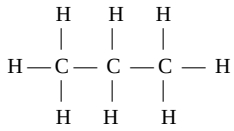
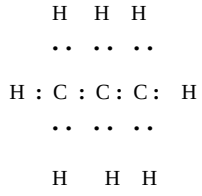
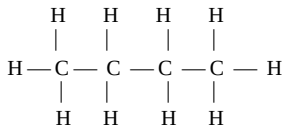
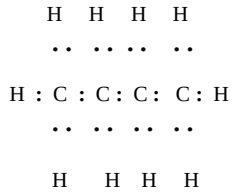
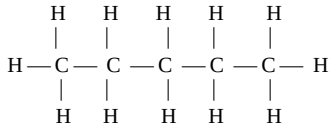
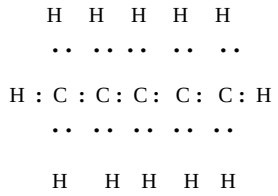
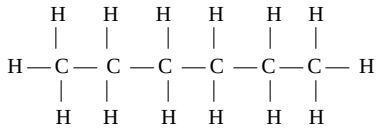
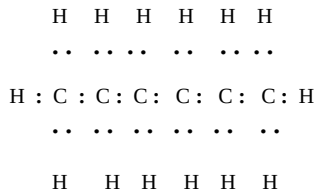
N	Formula	Common name	IUP AC Name
2	C_2H_2	Acetylene	Ethyne
3	C_3H_4	Methyl-acetylene Or Allylene	Propyne
4	C_4H_8	Ethyl Acetylene	Butyne
5	C_5H_8	Propyl acetylene	Pentyne
6	C_6H_{10}	Butylacetylene	Hexyne

Alkyl group :- The group formed by the removal of one H-atom from an alkane molecule is called an alkyl group. e.g methyl group CH_3 and Ethyl group C_2H_5.. They are formed by the removal of one H-atom from methane and ethane.

The general formula of alkyl group is $C_n H_{2n+1}$. Thus alkane - ane + yl = alkyl

Alkane	Alkyl group	Common Name
Methane CH_4 Ethane C_2H_6 Propane C_3H_8	CH_3___ C_2H_5___ C_3H_7____	Methyl Ethyl Propyl

Q#19 Write down the molecular, structural and electronic formula of Mcthane, Ethane, Propane, Butane, Pentane, Hexane, Heptane.

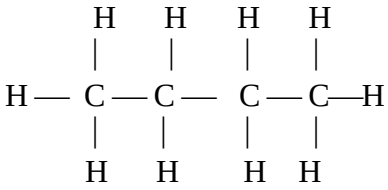
Name	Formula $C_n H_{2n+2}$	Structural Formula	Electronic Formula
Methane	CH_4		
Ethane	C_2H_6		
Propane	C_3H_8		
Butane	C_4H_{10}		
Pentane	C_5H_{12}		
Hexane	C_6H_{12}		

Another Classification Of Organic Compounds:

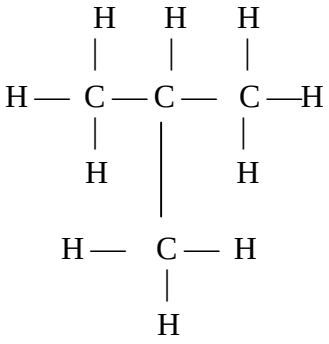
1. Acyclic compounds or open chain compounds.
2. Cyclic compounds or Ring compounds.

1. **Open chain or Acyclic compounds:-** When the compounds contain open chains of carbon atoms, they are referred to as open chain compounds or acyclic compounds. They are also called aliphatic compounds. They may be of two types:

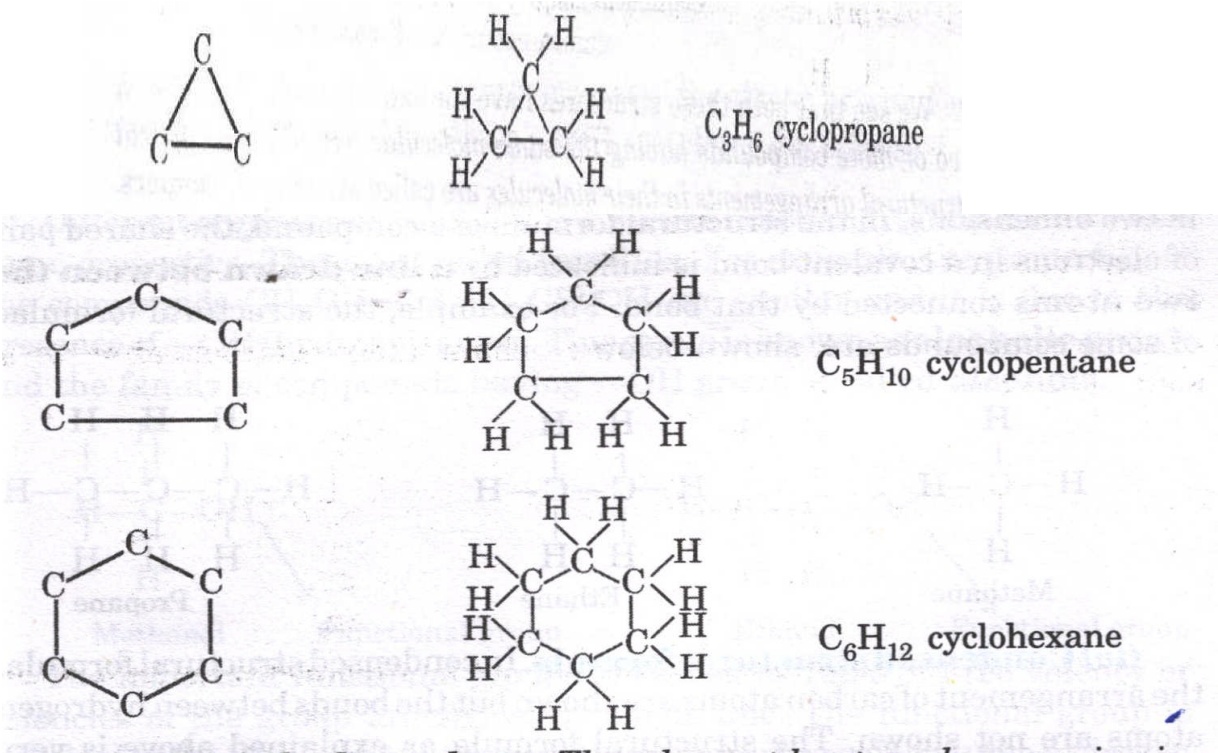
   i) **Straight chain compounds:** Carbon compounds in which no. of carbon atom of the chain is linked to more than two other carbon atoms are called straight chain compounds.



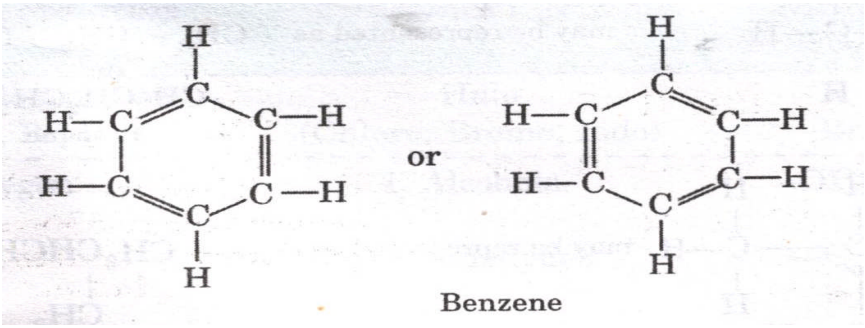
   ii) **Branched chain compounds:** Carbon compounds in which at least one carbon atom of the chain is linked to three or four other carbon atoms are called branched chain compounds e.g. iso-butane.



2. **Cyclic Compounds:-** Compounds which contain closed rings of carbon atoms are known as cyclic or ring compounds. They are further classified as:-
   i) Alicyclic (saturated cyclic compounds):- In these compounds, three or more carbon atoms are present and all of them are linked by single covalent bonds to form the rings. For this reason their properties are almost similar to those of aliphatic compounds. Their general formula is C_nH_{2n} which is same as that of alkenes e.g.



Aromatic compounds (unsaturated cyclic compounds):-
In these compounds one or more rings made up of C-atoms are present, containing alternate double and single bonds. Benzene is the most common example of aromatic compounds.



Benzene

Alkyl Group
When a hydrogen atom is removed from an alkane, the group obtained is called as an alkyl group is CH_3 (methyl), C_2H_5 (ethyl) and so on.

Different Types Of C-Atoms In Alkanes:
Depending upon the mode of linkage, various C-atoms present in alkanes can be classified into following:

Primary C-atom (I^0 carbon):- A carbon atom attached to only one carbon atom is called a primary (1^0) carbon atom e.g. $CH_3 - CH_3$.

Secondary C-atom (2^0 carbon):- A carbon atom attached to two other carbon atoms is called secondary (2^0) carbon atom e.g. $CH_3 - CH_2 - CH_3$.

Tertiary C-atom (3^0 carbon):- A carbon atom attached to three other carbon atoms is called a tertiary (3^0) carbon atom e.g.

$$CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}} - CH_3$$

Quaternary C-atom (4^0 carbon):- A carbon atom attached to four other carbon atoms is called a quaternary (4^0) carbon atom e.g.

$$CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{\underset{\displaystyle |}{CH}}} - CH_3$$
$$CH_3$$

Alkanes:-	$C_n H_{2n+2}$
Methane	CH_4
Ethane	C_2H_6

Propane	C_3H_8
Butane	C_4H_{10}
Pentane	C_5H_{12}
Hexane	C_6H_{12}
Heptane	C_7H_{16}
Octane	C_8H_{18}
Nonane	C_9H_{20}
Decane	$C_{10}H_{22}$

Alkenes:-	$\mathbf{C_n\ H_{2n}}$
Ethene	C_2H_4
Propene	C_3H_6
Butene	C_4H_8
Pentene	C_5H_{10}
Hexene	C_6H_{12}
Heptene	C_7H_{14}
Octene	C_8H_{16}
Nonene	C_9H_{18}
Decene	$C_{10}H_{20}$

Alkynes:-	
Ethyne	C_2H_2
Propyne	C_3H_4
Butyne	C_4H_6
Pentyne	C_5H_8
Hexyne	C_6H_{10}
Heptyne	C_7H_{12}
Octyne	C_8H_{14}
Nonyne	C_9H_{16}
Decyne	$C_{10}H_{18}$

Homologous Series:
A series of organic compounds having same functional group, similar chemical properties and all of them can be represented by the same general formula and the two consecutive members differ by CH_2 group in their molecular formula. The various members of homologous series are called homologous e.g. alkanes, alcohols etc.

Characteristics Of Homologous Series

1. All the members of the series can be represented by the same general formula e.g. all the members of alkanes can be represented by the general formula C_nH_{2n+2}, all the members of the alcohol family can be represented by the general formula $C_nH_{2n+1}OH$.
2. The two successive members differ by CH_2 group in their molecular formula.
3. The two successive members differ by 14amu in their molecular mass.
4. All the members of the series possess the same functional group.
5. The chemical properties of all the member of the series are similar or almost similar.
6. The physical properties show almost regular variation in ascending or descending the series.

7. The members present in a homologous series can be prepared almost by similar methods known as general methods of preparation.

Q What is meant by functional group? Explain with an example.

Ans. A functional group is an atom or group of atoms in a molecule that gives the molecule its characteristic chemical properties.

The alcohol group — OH group present in ethanol C_2H_5OH is an example of a functional group the functional group is the action group while the hydrocarbon portion remains inert. Some of the important functional groups present in organic compounds are Halo group, Alcohol group, Aldehyde group, Ketone group, Carboxylic group, Alkene group, Alkyne group, ether group, ester , amino and amide group.

Q Write down the IUPAC system of Nomenclature.

Ans. In early days of organic chemistry, each new compound was given an individual name. Such a name was based on the source, some property or some other common reason.

With the rapid growth of organic chemistry, the number of compounds increased fantastically (about 3 million). It became impossible to give common names to such a large number of compounds.

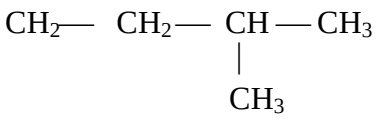
In 1957, the international union of pure and applied chemistry evolved a scheme for giving systematic names to organic compounds on the basis of their structure. This is known as IUPAC system (pronounced as eye-you-pack)

One organic compound can have only one IUPAC name. Knowing the IUPAC name of a compound, we can at once write its structural formula.

Q Write the IUPAC rules for naming Alkanes.

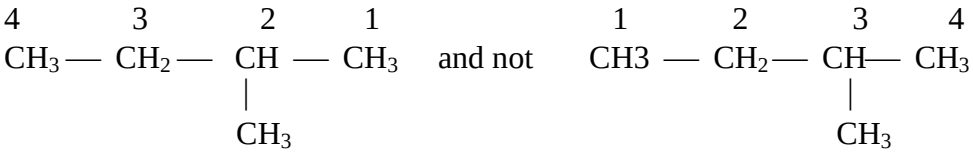
Ans. **Rule1**:- Select the longest continuous carbon chain.

Rule2:- Name the longest chain.



The longest chain is butane

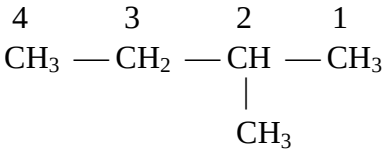
Rule3:- Number the longest chain:- The numbering is started from that end which will give lowest value to substituent.



Rule4:- Identify the substituent:-

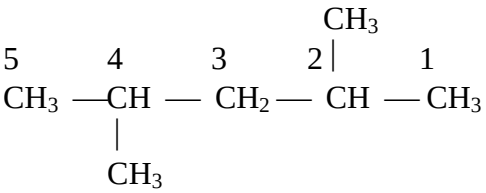
Name the substituent and indicate its position by the number of the C-atom to which it is attached.

Rule5:- Prefix the position number and name of the substituent onto the parent name.

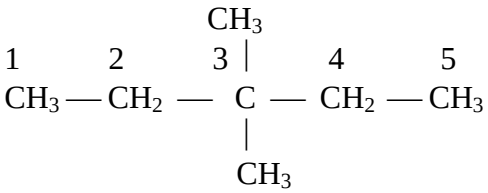


2- methyl butane

Rule6:- Identify the substituent by names and position number. Use prefix di, tri, tetra etc.

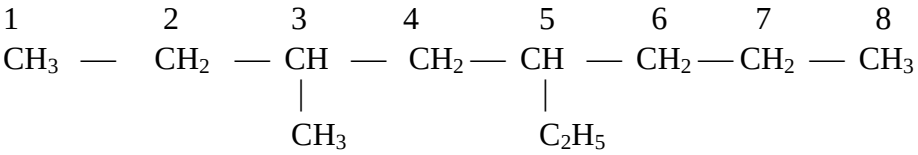


2,4- dimethyl pentane

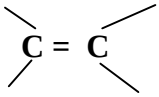


3, 3 – dimethyl pentane.

Rule 7:-When two or more different substituents are present. These names are arranged in alphabetic order

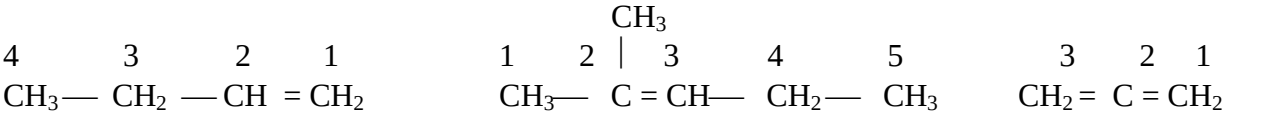


5- ethyl-3-methyloctane

IUPAC RULES For Alkene 

The alkene group is a carbon – carbon double bond. The compounds containing alkene group are known as alkenes. For example.

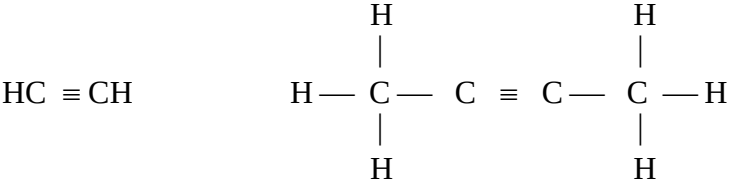
Propene 2-methyl propene



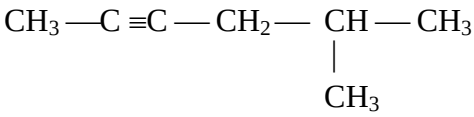
1-Butene 2-methyl -2- pentene 1,2-propadiene

IUPAC Rules for Alkynes:-

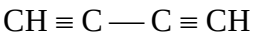
The alkyne group is a carbon-carbon triple bond. The compounds containing alkyne group are known as alkynes.



Ethyne 2- Butyne



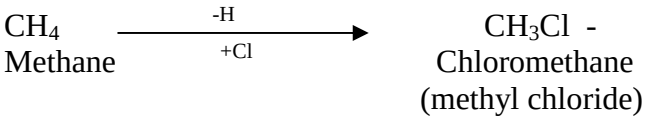
5- methyl – 2-hexyne



1,3- Butadiyne

Nomenclature of Haloalkanes or Alkyle halides

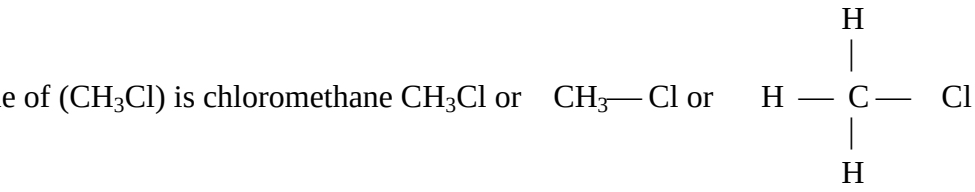
Haloalkanes are compounds which contain carbon- halogen bonds. When one hydrogen atom of an alkane is replaced by a halogen atom, we get haloalkanes. i.e.



Methane — Chloromethane (methyl chloride)

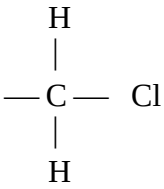
The general formula of haloalkanes is $C_nH_{2n+1} – X$ where X represents Cl, Br or I. In the IUPAC method, haloalkanes are named after the parent alkane by using a prefix to show the presence of the halo group such as chloro (-Cl), Bromo(-Br) and Iodo (-I) group.

The IUPAC name of (CH_3Cl) is chloromethane CH_3Cl or

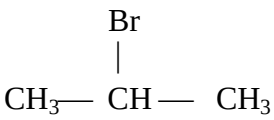


The common name of CH_3Cl is methyl chloride. The IUPAC name of (C_2H_5Cl) is chloroethane

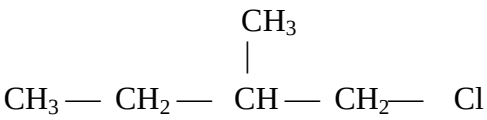
C_2H_5Cl or



The common name of C_2H_5Cl is ethyl chloride.

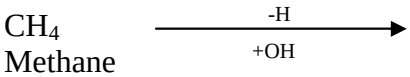


2- Bromo propane



1- chloro – 2-methyl butane

Nomenclature of Alcohols:- Alcohols are compounds in which a hydroxyl group (-OH) is bonded to a saturated carbon. When one hydrogen atom of an alkane is replaced by a hydroxyl group, we get alcohol.



Methyl alcohol (or methanol)

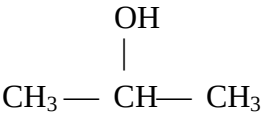
or R—OH Where R is the alkyl group.

The general formula of alcohols is $C_nH_{2n+1} – OH$

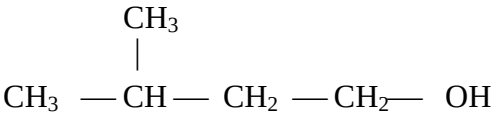
In the IUPAC method, the last 'e' of the parent alkane is replaced by 'ol' to indicate the presence of OH group.

i.e. Alkane-e +ol ⟶ Alkanol

The IUPAC name of CH_3OH is methanol while as the common name is methyl alcohol. Similarly the IUPAC name of C_3H_7OH is propanol and the common name is propyl alcohol.



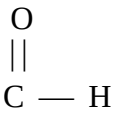
2-propanol



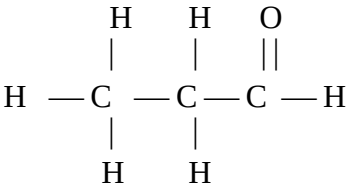
3- methyl – 1- butanol

Nomenclature of aldehyde:- Aldehydes are carbon compounds in which an aldehyde group (-CHO) group is attached to a carbon atom. The general formula of aldehyde is $C_nH_{2n}O$, when n=1,2,3…….
In the IUPAC method, the last 'e' of the parent alkane is replaced by 'al' to indicate the presence of aldehyde group.

i.e. Alkane – e + al = Alkanal.

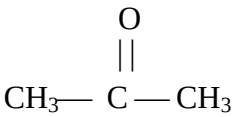
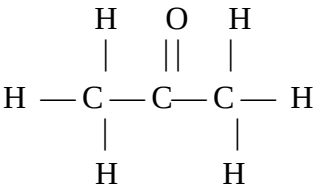
The IUPAC name of HCHO is methanal HCHO or H — CHO or 

The common name of methanal is formaldehyde. The IUPAC name of CH_3CHO is ethanal whereas its common name is acetaldehyde. Similarly, the IUPAC name of C_2H_5CHO is propanal and its common name is propionaldehyde.

$CH_3—CH_2—CHO$ or $CH_3 — CH_2 —CHO$ or 

Nomenclature of ketones:-
Ketones are compounds in which the carboxyl group (C=O) is bonded to two organic groups. A ketone must contain at least 3-carbon atoms in its molecule. The simplest ketone is CH_3COCH_3 (propanone) the general formula of ketone is $C_nH_{2n}O$.
Where n= 3, 4, 5……
In the IUPAC method, the last 'e' of the parent alkane is replaced by 'one' to indicate the presence of a ketone group.

The IUPAC name of CH_3COCH_3 is propanone and its common name is Acetone (dimethyl ketone)

CH_3COCH_3 or  or 

The IUPAC name of CH_3 CO C_2H_5 is butanone and its common name is Ethyl methyl ketone. Similarly, for $CH_3COC_3H_7$, the IUPAC name is pentanone and the common name is methyl propyle ketone.

Nomenclature of carboxylic acids:-

Carboxylic acids are compounds which contain the carboxylic acids are compounds which contain the carboxyl group(-COOH). They are also called organic acids. They occur in fatty acids, butter, ghee etc. the general formula of organic acid is Cn H_{2n+1} COOH or RCOOH where R is an alkyl group. The name carboxyl is derived from carboxyl (C=O) and hydroxyl (-OH). In the IUPAC system, the carboxylic acids are named as alkanoic acids. The IUPAC name of an organic acid is obtained by replacing the last electron of the parent alkane by 'oic' and adding the word 'acid' to the name.

The IUPAC name of HCOOH is methanoic acid and its common name is formic acid.

The first five organic acids are given below:

	Formula	**Common name**	**IUPAC**
n=0	HCOOH	Formic acid	Methanoic acid
n=1	CH_3COOH	Acetic acid	Ethanoic acid
n=2	C_2H_5COOH	Propanoic acid	Propanoic acid
n=3	C_3H_7COOH	Butyric acid	Butanoic acid
n=4	C_4H_9COOH	Valeric or Camroic acid	Pentanoic acid.

Chemical properties of carbon compounds

Combustion:- The process of burning of a carbon compound in air to give carbon dioxide, water heat and light is known as combustion.

All the alkanes are combustile. When they are ignited in the presence of excess oxygen, they burn to form CO_2 and H_2O with the liberation of large amount of heat energy.

$$CH_4 + 2O_2 \xrightarrow{\text{Heat}} CO_2 + 2H_2O + \text{Heat} + \text{light}$$

When alkanes are burnt in insufficient supply of oxygen, they form carbon monoxide and carbon. For example:

$$2CH_4 + 3O_2 \longrightarrow 2CO + 4H_2O$$

$$CH_4 + O_2 \longrightarrow C + 2H_2O$$

The unsaturated hydrocarbons (Alkanes and Alkynes) do not undergo complete combustion and hence burn with luminous, yellow sooty flame and produce carbon monoxide and water because they contain higher percentage of carbon which does not get oxidized completely in the insufficient oxygen present in air. However, if unsaturated hydrocarbons are burned in pure oxygen, then they will burn completely and produce extremely high temperature. For example, when acetylene burn in pure oxygen, it produces extremely high temperature (3000^0C) which is used for welding and cutting of metals.

Substitution reaction:- Alkanes are comparatively uncreative due to their structural stability. They however, undergo substitution reaction. In the substitution reaction, one or more hydrogen atoms of a hydrocarbon are replaced by the atoms of other elements like halogens (F , Cl , Br, I)

For example methane reacts with chlorine to give methyl chloride and HCl in presence of ultraviolet light or diffused sunlight or at a temperature of 300 – 400^0C.

$$CH_4 + Cl_2 \xrightarrow{\text{Sunlight}} CH_3Cl + HCl$$

Methyl chloride (Chloro methane)

$CH_3Cl + Cl_2 \xrightarrow{\Delta} CH_2Cl_2 + HCl$

Methylene chloride (Di chloro methane)

$CH_2Cl_2 + Cl_2 \xrightarrow{\Delta} CHCl_3 + HCl$

Chloroform (Trichloro methane)

$CHCl_3 + Cl_2 \xrightarrow{\Delta} CCl_4 + HCl$

Carbon tetrachloride (Tetra chloro methane)

Addition reaction:- The reaction in which an unsaturated compound reacts with another substance to give a single product is called an addition reaction. Addition reactions are given by all unsaturated hydrocarbons like alkenes and alkynes which contain double bond or triple bond. In fact, addition reaction is the characteristic property of unsaturated hydrocarbons-. For example,

Ethene reacts with one molecule of chlorine to form a saturated compound dichloroethane

$C_2H_4 + Cl_2 \longrightarrow CH_3Cl - CH_3Cl$

1,2 dichloro ethane

In this addition reaction, one Cl atom adds to each C-atom and the double bond is reduced to single bond.

Addition reaction of ethene with hydrogen:- Ethene reacts with hydrogen, when heated under pressure and in the presence of Ni , Pt , or Pd as catalyst to produce saturated hydrocarbons. A hydrogenation reaction carried in this process is called catalytic hydrogenation.

$CH_2 = CH_2 + H_2 \xrightarrow[\Delta]{Ni} CH_3 - CH_3$

Ethene Ethane

The process of hydrogenation is used to prepare vegetable ghee (vanaspati) from vegetable oils.

Hydrogenation of oils:- Hydrogenation reaction is used in the manufacture of vanaspati ghee from vegetable oils. The vegetable oils such as groundnut oil, cotton seed oil and mustard oil contain double bonds in their molecules. When reacted with hydrogen in the presence of nickel as catalyst, they are converted into vanaspati ghee which is solid at room temperature like butter or ghee.

Vegetable oil + $H_2 \xrightarrow{Ni}$ Vegetable ghee

(Unsaturated hydrocarbon) Vanaspati ghee **or**

(Saturated hydrocarbon)

Oxidation reaction:- When alkenes react with cold dilute alkaline solution of potassium permanganate ($KMnO_4$), ethyle glycol is formed.

i.e. $C_2H_4 \xrightarrow[H2O]{KMnO4} CH_2(OH) - CH_2(OH)$

Ethane

Ethylene glycol.

Since the bright purple colour of $KMnO_4$ disappears during the reaction. It is used as a test for the presence of a double bond.

Q#36 Give the preparation, properties and uses of ethanoic acid (Acetic acid).

Ans. Ethanoic acid (acetic acid) is well known in the form of vinegar. Vinegar contains about 5-8 % of ethanoic acid. It is present in biological fluids and plant extracts.

Preparation:- Ethanoic acid can be prepared by several methods.

i) By enzymatic oxidation of ethanol:- It can be obtained by the oxidation of ethanol by air in the presence of acetobactor enzyme.

$$CH_3CH_2OH(l) + 2[O] \xrightarrow{\text{acetobactor}} CH_3COOH(aq) + H_2O(l)$$

Ethanol From air Ethanoic acid

(5 – 8%)

ii) It can be prepared by the hydrolysis of alkyl cyanide

$$CH_3CN + 2H_2O \longrightarrow CH_3COOH + NH_3$$

iii) Methanol when reacted with carbon monoxide in the presence of iodine-rhodium catalyst gives ethanoic acid.

$$CH_3OH(l) + CO(g) \xrightarrow{I_2 - Rh} CH_3COOH$$

Methanol Carbon monoxide Ethanoic acid

Physical properties:- Some common physical properties of ethanoic acid are described below:-

1). At ordinary temp. ethanoic acid is a colourless liquid with a strong pungent smell and sour taste.
2). On cooling below 16.5^0C it forms ice-like crystals that is why, it is named as glacial acetic acid.
3). It has a corrosive action on the skin and causes blisters.
4). It is miscible with water due to the formation of hydrogen bonds with water molecules.
5). It dissolves sulphur, iodine and many other organic compounds.

Chemical properties:- The main chemical reactions given by ethanoic acid are described below:

1) With water:- In aqeous solutions, it ionizes to produce H_3O+ and CH_3COO- ions.

$$\underset{\text{Ethanoic acid}}{CH_3COOH(l)} + H_2O(l) \rightleftharpoons \underset{\text{Ethanoate ion}}{CH_3COO^-(aq)} + \underset{\text{Hydronium ion}}{H_3O^+(aq)}$$

2) **Action on ltmus:-** Ethanoic acid is acidic in nature being acidic in nature, ethanoic acid terms blue litmus solution red.

3) **With sodium hydroxide:-** It reacts with strong alkali such as NaOH giving sodium ethanoate and water.

$$CH_3COOH(aq) + NaOH(aq) \longrightarrow CH_3COONa(aq) + H_2O(l)$$

Ethanoic acid Sodium hydroxide Sodium ethanoate Water

4) **With metals**:- Ethanoic acid reacts with active metals to form metal ethanoates and H- gas.

$$2CH_3COOH(aq) + 2Na(s) \longrightarrow 2CH_3COONa(aq) + H_2(g)$$

Ethanoic acid Sodium Sodium ethanoate Hydrogen gas

5) **With sodium carbonate and sodium bicarbonate:-** Ethanoic acid decomposes sodium bicarbonate and sodium carbonate with a rapid evolution of CO_2 gas.

Na_2CO_3 (aq) + $2CH_3COOH$(aq) ⟶ $2CH_3COONa$(aq) + H_2O (l) + CO_2 (g)

Sodium carbonate Ethanoic acid Sodium ethanoate Water Carbon dioxide

6) **Reaction with alcohols**:- Ethanoic acid reacts with alcohols in the presence of dehydrating agents e.g. concentrated H_2SO_4 to form ester.

CH_3COOH(l) + C_2H_5OH(l) $\underset{}{\overset{H_2SO_4}{\rightleftharpoons}}$ $CH_3COOC_2H_5$ + H_2O

Ethanoic acid Ethanol Ethyl ethanoate.

The reaction of carboxylic acid with an alcohol to form an ester is called esterification.

Tests for carboxylic acids:-

1) **Sodium bicarbonate test**:- The organic compound to be tested is put in a test tube and a little amount of sodium bicarbonate is added to it. Evolution of CO_2 gas shows that the given compound is carboxylic acid.

2) **Ester test for acids**:- The organic compound is warmed with some ethanol and few drops of concentrated sulphuric acid. A sweet smelling ester shows that the organic compound is a carboxylic acid.

Uses of ethanoic acid:-

1) Ethanoic acid is used in the manufacturing of various dyes, perfumes and rayons.
2) Salts of ethanoic acid are used in paints and also in certain medicines.
3) It is used for making synthetic vinegar which is used in pickles etc.
4) It is used as a solvent.
5) It is used for coagulating the latex.
6) It is used for making white lead.
7) It is used for making cellulose acetate.
8) It is used for making acetone.

Q. Give the preparation, properties and uses of ethyl alcohol (ethanol).

Ans. Ethyl alcohol (C_2H_5OH) is the second number of the homologous series of alcohols. Ethyl alcohol is the alcohol of wine, bear, whisky and similar beverages. Ethyl alcohol is also known as grain alcohol, since it can be prepared from starchy grains.

Preparation:- It is prepared on a large scale by the fermentation of sugars present in molasses (cheap source of glucose, fructose and sucrose) in the presence of yeast. The enzymes **invertase** and **zymase** present in the yeast act as catalyst in converting sugar into ethanol and $C0_2$.

$C_{12}H_{22}O_{11}$ + H_2O $\xrightarrow{\text{Invertase}}$ $C_6H_{12}O_6$ + $C_6H_{12}O_{12}$

Sucrose (in molasses) Glucose Fructose

$C_6H_{12}O_6$ $\xrightarrow{\text{zymase}}$ $2C_2H_5OH$ + $2CO_2$ (g)

Glucose/Fructose Ethyl alcohol

It is obtained by reacting ethene with water in the presence of phosphoric acid (H_3PO_4) at a temperature of 300^0C and 60 -70atm.

$$\underset{\text{Eyhene}}{C_2H_4} + \underset{\text{water}}{H_2O} \xrightarrow[300^0\text{c, 60-70 atm}]{H_3PO_4} \underset{\text{Ethanol}}{C_2H_5OH}$$

Physical properties:-

1. It is a colourless, volatile liquid with a characteristic pleasant odour and burning taste.
2. It boils at 78°C and freezes at -118^0C.
3. Its specific gravity is 0.789
4. It is soluble in water as well as in all organic and inorganic solvents.
5. It is a neutral compound and has no effect on the colour of litmus.
6. It is lighter than water.
7. It is poisonous in nature.
8. It is a covalent compound and hence does not conduct electricity.

Chemical Properties of Ethanol:

1. Reaction with Na or K :- Ethyl alcohol reacts with sodium to form the corresponding ethoxides and H - gas.

$$2\,C_2H_5OH + 2\,Na \longrightarrow \underset{\text{Sodium Ethoxide}}{2C_2H_5ONa} + H_2\,(g)$$

2. **Reaction with Phosphorus halide:-** It reacts with phosphorus halide to give ethyl halide.

$$C_2H_5OH + PCl_5 \longrightarrow \underset{\text{Ethyl chloride}}{C_2H_5Cl} + \underset{\text{phosphorous oxychloride}}{POCl_3} + HCl$$

3. Combustion:-It burns in air with a blue flame to form CO_2 and water vapour.

$$C_2H_5OH + 3O_2 \xrightarrow{\text{Combustion}} 2\,CO_2 + 3\,H_2O + \text{Heat} + \text{light}$$

4. Oxidation:-

Alkaline potassium permanganate or acidified dichromate solution oxidizes ethanol to ethanoic acid (acetic acid)

$$CH_3CH_2OH + 2[O] \xrightarrow[\text{Or acidified } K_2Cr_2O_7]{\text{Alkaline } KMnO_4} \underset{\text{Ethanoic acid.}}{CH_3COOH} + H_2O$$

5.Reaction with ethanoic acid (Esterification reaction):- Ethanol when heated with ethanoic acid in the presence of concentrated H_2SO_4 to form a sweet smelling ester (ethyl ethanoate).

$$\underset{\text{Ethanoic acid}}{CH_3COOH} + \underset{\text{Ethanol}}{C_2H_5OH} \xrightarrow{Conc.H_2SO_4} \underset{\text{EthylEthanoate}}{CH_3COOC_2H_5} + \underset{\text{Water}}{H_2O}$$

In this reaction, conc. H_2SO_4 acts as a catalyst as well as a dehydrating agent.

6.Dehydration:- When ethanol is heated with excess of conc. Sulphuric acid at 170^0 C, it gets dehydrated to form ethane.

$CH_3CH_2OH \xrightarrow[170^0\,C]{\text{Conc } H_2SO_4} CH_2=CH_2 + H_2O$

Ethanol — Ethene — Water

Tests for an alcohol

1. **Sodium metal test**:- Add a small piece of sodium metal to the organic liquid , taken in a dry test tube. If bubbles of hydrogen gas are produced, it indicates that the given organic liquid is an alcohol.
2. **Ester tests for alcohol**:- The organic compound is warmed with some ethanoic acid and a few drops of conc. Sulphuric acid. A sweet smell indicates that the given organic compound is an alcohol.

Uses:

1. It is used in the manufacture of alcoholic drinks, like whisky, wine, bear etc.
2. It is used in the manufacture of drugs and perfumes.
3. It is used in thermometers and spirit lamps.
4. It is used as a preservative for biological specimens.
5. It is used in the manufacture of acetaldehyde, acetic acid, ethyl chloride and ethyl acetate.
6. It is used as an industrial solvent.
7. It is used in hospitals as an antiseptic to sterilize wounds and syringes.
8. It is used in varnishes.
9. It is used in the manufacture of synthetic rubber.
10. It is used as a substitute of petrol in scooters and cars.
11. It is used as antifreeze for automobile radiators.

Physical properties of alkanes

1. First four alkanes C_1-C_4 are gases; next 13 (C_5-C_{17}) members are liquids, while the higher members are waxy solids.
2. Alkanes have generally low melting and boiling point but they increase with the increasing molecular mass.
3. Alkanes are almost insoluble in water but soluble in non-polar solvent like benzene, alcohol, etc.
4. The density of alkanes increases with increasing molecular mass but becomes constant at 0.8gm/cm3. This means that all alkanes are lighter than water.

Chemical properties of alkanes

1. **Combustion:** All alkanes are combustible. They burn in air or oxygen producing CO_2 and water vapour.

2. **Reactivity:-** Alkanes are comparatively un-reactive with other chemicals because they are saturated compounds having only single covalent bonds.
3. **Substitution Reaction**:- Due to the structural stability, alkanes are quite un-reactive and inert. However, in presence of heat or light, chlorine reacts very rapidly with saturated hydrocarbons to form substitution products. It involves the replacement of one or more hydrogen atoms by the atoms of other elements like halogens. E.g.

$CH_4 + Cl_2 \xrightarrow{\text{sunlight}} CH_3Cl + HCl$

Methane

$CH_3Cl + Cl_2 \xrightarrow{\text{sunlight}} CH_2Cl_2 + HCl$

Dichloromethane (chloroform)

$CH_2Cl_2 + Cl_2 \xrightarrow{\text{sunlight}} CHCl_3 + HCl$
Trichloromethane (chloroform)

$CHCl_3 + Cl_2 \xrightarrow{\text{sunlight}} CCl_4 + HCl$
Carbon tetrachloride

Substitution Reactions
Reactions which involve the direct replacement of an atom or a group of atoms in an organic molecule by another atom or group of atoms without any change in the rest of molecule are called as substitution reactions.

Cracking of Alkanes/ Pyrolysis
The decomposition of a compound by heat is called pyrolysis. This process when applied to alkanes is called as cracking. In this process, large alkane molecules are broken down into a mixture of smaller, lower molecular weight alkanes, alkenes and hydrogen.
When the cracking is carried out with the help of heat, it is called thermal cracking and when it is done by heat and catalyst, it is called catalytic cracking e.g.

Hexane $\xrightarrow{\text{heat}}$ Butane + ethane

Methane: It is the first member of alkane series. It is also called marsh gas as it is found in marshy areas where it is produced as a result of bacterial decomposition of organic matter. The biggest source of methane is natural gas.
A methane molecule is non-polar and has a 3D structure called tetrahedral structure. The various C_H bonds in methane make an angle $109^0\ 28^/$ with each other.

Preparation: It is prepared by heating a mixture of sodium acetate (one part) and soda lime (3-4 parts) in a hard glass tube fitted with a delivery tube. The gas is collected by downward displacement of water.

$CH_3COONa + NaOH \rightarrow CH_4 + Na_2CO_3$
Sodium acetate methane

Physical properties of methane
1. It is a colourless, odourless and tasteless gas.
2. It is lighter than air.
3. Its melting point is -182^0C and boiling point -162^0C.
4. It is insoluble in water but soluble in organic solvents.
5. Its specific gravity is 0.55 at 0^0C and 1 atmospheric pressure.
6. It contributes to green house effect.

Chemical properties of methane
1. **Combustion**: Methane reacts with air and burns with a bluish flame forming CO_2 and water vapours.

   $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O +$ heat.

2. **Reaction with steam:-** When methane is treated with steam in presence of nickel as a catalyst, CO & H_2 are formed.

   $CH_4 + H_2O \rightarrow CO + 3H_2$

3. **Substitution reaction:** At high temperature or in the presence of light methane shows substitution reaction e.g.

$CH_4 + Cl_2 \xrightarrow{light} CH_3Cl + HCl$

$CH_3Cl + Cl_2 \xrightarrow{light} CH_2Cl_2 + HCl$

$CH_2Cl_2 + Cl_2 \xrightarrow{light} CHCl_3 + HCl$

$CHCl_3 + Cl_2 \xrightarrow{light} CCl_4 + HCl$

Physical properties of alkenes

1. The first three alkenes (C_2-C_4) are gases, next 14 (C_5 – C_{18}) are liquids, while still higher ones are solids.
2. They are all colourless and odourless except ethene which has a pleasant odour.
3. Alkenes are only slightly soluble in water but dissolve fully in organic solvents.
4. They have a maximum density of about 0.89 gm/cm^3. This means that alkenes are lighter than water.
5. Their melting and boiling points increase with the increase in molecular weight in the series.

Chemical properties of alkenes

1. **Combustion:** When burnt in air, alkenes are oxidized to CO_2 and H_2O and also large amount of heat and light is released.

   $C_2H_4 + 3O_2 \rightarrow 2CO_2 + 2H_2O +$ heat.

2. **Reactivity**: The alkenes are more reactive than alkenes due to the presence of double bond.

3. **Addition reaction**: These are characteristic reactions of unsaturated hydrocarbons as another molecule is easily added at the multiple bonds to give a saturated product.
   Due to the presence of double and triple bonds, unsaturated hydrocarbons are more reactive and hence add hydrogen in presence of a catalyst such as nickel, platinum, to form saturated hydrocarbons. This process is called hydrogenation or catalytic hydrogenation.

   $CH_2 = CH_2 + H_2 \xrightarrow[heat]{Ni} CH_3 - CH_3$

   Ethene Ethane

Need for hydrogenation: This addition reaction is commonly used in the hydrogenation of vegetable oils to form fats. Vegetable oils generally have long unsaturated carbon chains while as animal fats have saturated carbon chains.

Vegetable oil + Hydrogen $\xrightarrow{nickel,\ 473K}$ Ghee

When vegetable oils are exposed to hot and humid weather for a long time, they turn rancid i.e. they develop unpleasant smell and taste. This process occurs due to formation of carboxylic acids and aldehydes by the action of oxygen and moisture on the long unsaturated carbon chains present in vegetable oils. Hydrogenation reduces the no. of such carbon chains present in vegetable oils. Hydrogenation reduces the no. of such unsaturated carbon chains and shows down the rancidity.

Addition of hydrogen to the unsaturated hydrocarbons:

$C_2H_4 + Cl_2 \rightarrow CH_2C - CH_2Cl$

Ethene dichloroethane

Ethene: It is the first member of hydrogous series of alkenes.

Physical properties:

1. It is a colourless gas with sweet odour.
2. It is lighter than air.
3. Its melting point is -169.2^{0}C and boiling point is -103.7^{0}C.
4. It is insoluble in water but soluble in organic solvents.

Preparation:
It can be obtained by heating ethanol, with excess of conc. Sulphuric acid at 170^{0}C.

$$C_2H_5OH \xrightarrow[170C]{\text{conct. } H2SO4} C_2H_4 + H_2O$$

A mixture of ethanol and conc. sulphuric acid is taken in a flask. Small amounts of sand and aluminium sulphate are added to the flask to prevent froathing. On heating the contents of the flask, ethane gas is evolved and collected in the gas jar as a downward displacement of water.

Alkynes:
Physical properties: Same as that of alkenes.

Chemical properties:

1. **Combustion**: When burnt in air alkynes are oxidized to CO_2 and water and also heat is produced.
$C_2H_2 + O_2 \rightarrow CO_2 + H_2O +$ heat.

2. **Reactivity:** Alkynes are less reactive than alkenes but more reactive than alkanes.

3. **Addition reaction:** In presence of nickel, alkynes add up with hydrogen and form alkenes and alkanes.

$$CH \equiv CH + H_2 \xrightarrow{Ni} CH_2 = CH_2 + H_2 \xrightarrow{Ni} CH_3 - CH_3$$

Ethyne:
Preparation: It is prepared in the laboratory by the action of water on calcium carbide.

$$CaC_2 + 2H_2O \rightarrow CH \equiv CH + Ca(OH)_2$$

It is also prepared by heating methane gas at 1500^{0}C in an element are:

$$2CH_4 \rightarrow HC \equiv CH + 3H_2$$

Physical properties:
1. It is a colourless and odouless gas when pure.
2. It is slightly soluble in water but dissolves fully in organic solvents.
3. Its melting point is -80.8^{0}C and boiling point is -84^{0}C.

Soaps:
Soaps are sodium salt (or potassium salt) of a long chain carboxylic acid (fatty acid) which have cleansing properties in water. Soap molecule contains a large non-ionic hydrocarbon chain (tail and an ionic group, COO^-Na^+ (head). Some examples are: Sodium strearate and sodium palmitate.

- **Sodium Strearate, $C_{17}H_{35}COO^-Na^+$:** Sodium strearate is the sodium salt of a long chain saturated fatty acid called stearic acid, $C_{17}H_{35}COOH$. Sodium strearate soap has a long alkyl group $C_{17}H_{35}$ and an ionic carboxylate group COO^-Na^+.

- **Sodium Palmitate, $C_{15}H_{31}COO^-Na^+$:** Sodium palmitate is the sodium salt of a long chain saturated fatty acid called palmitic acid, $C_{15}H_{31}COOH$.
  Chemically soaps are salts of a strong base (like sodium hydroxide) and a weak acid (a carboxylic acid), therefore in aqueous solution they show basic nature and turn red litmus paper into blue.

Manufacturing of Soap

Soaps are prepared by heating animal fat or vegetable oil with concentrated sodium hydroxide solution (caustic soda solution). When heated with sodium hydroxide solution, fats and oils (obtained from animals and plants) split to form sodium salt of higher fatty acids (called soap) and glycerol. The reaction is called saponification.

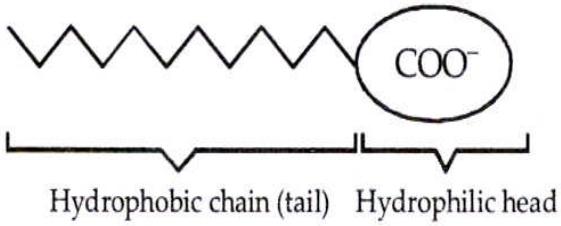
Fat or Oil (An ester)	+	Sodium hydroxide (An alkali)	→	Soap (Sodium salt or fatty acid)	+	Glycerol (An alcohol)

$$C_3H_5(C_{17}H_{35}COO)_3 + 3NaOH \rightarrow 3C_{17}H_{35}COONa\ (soap) + C_3H_5(OH)_3$$

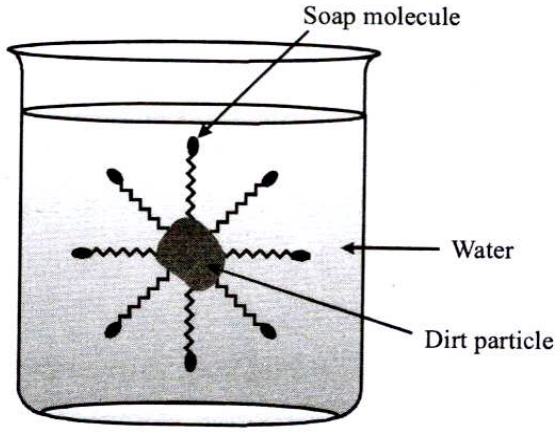
This process of making soap by the hydrolysis of fats and oils with alkalis is called saponification.
During saponification, common salt is added to the mixture to precipitate out all the soap from the aqueous solution as it is more soluble in water as compared to soap. In absence of common salt some soap remains dissolved in mixture which is not precipitated on heating.

Structure and Cleansing Action of Soap

A soap molecule is made up of two parts: A long hydrocarbon part (tail) and a short ionic part (head) containing $-COO^-Na^+$ group. The soap molecule is said to have a tadpole structure.



The long hydrocarbon chain is hydrophobic (water-repelling) and is insoluble in water but soluble in oil and grease. The ionic portion of the soap molecule is hydrophilic (water- attracting) due to the polar nature of water molecules and is soluble in water but insoluble in oil and grease.
Hydrocarbon part of the soap molecule is soluble in oil or grease thus attach with oil and grease particles present on dirty clothes. The short ionic part of the soap molecule is soluble in water, so it can attach to the water particles (in which the soap is dissolved and dirty cloth is dipped). This way soap molecules from spherical micelles in which hydrophobic chains are project in wards and hydrophilic heads are projected outwards.



Soap micelle with dirt particle trapped inside

A spherical aggregate of soap molecules in the soap solution in water is called a 'micelle'. When dissolved in water, soap molecules ionize and Na^+ ions are remove from head. Due to this reason overall charge on surface of micelles is negative. Due to negative charge on outer surface micelles repel each other and stabilize to produce a colloidal solution.
Thus, when we agitate a dirty soap solution, the oily and greasy particles present on cloth surface are entrapped by soap micelles which get dispersed in water. This results in dirty appearance of soap solution. Micelles attach to cloth (suspended in water, present in cloth) are removed by rinsing cloth in clean water a number of times. A soap solution appears cloudy because the soap micelles are larger enough to scatter light. When soap is dissolved in organic solvents like ethanol or chloroform, micelles are not formed because long hydrocarbon chain is soluble in organic solvents.

Limitations of Soap

Major limitation of soap is that it is not suitable for washing clothes with hard water. It is because of two reasons:

- Soap does not give lather easily with hard water as a large amount of soap is wasted in reacting with ions present in hard water to form an insoluble curdy precipitate called scum, before it is used for washing. In hard water soap first reacts with the calcium and magnesium ion present in hard water to form insoluble precipitates of calcium and magnesium salts of fatty acids (scum). This increases the amount of soap required for washing clothes.
- The scum formed, sticks to the clothes and interferes with the cleansing ability of soap. This makes the cleaning of clothes difficult.
  The formation of lather or foam (jhaag) is necessary for removing dirt from clothes during the washing of clothes. Soft water, however, does not contain any calcium ions or magnesium ions and, therefore, lathers easily when soap is added.

Detergents

Detergents are also called 'soap-less soaps' because through they act like a soap in having the cleansing properties, they do not have usual soapy touch of 'soaps' like sodium strearate, etc. They are better cleansing agents because they do not give insoluble calcium and magnesium salts with hard water, and therefore can be used for washing even with hard water.

A detergent is the sodium salt of a long chain benzene sulphonic acid (or the sodium salt of a long chain alkyl hydrogen sulphate) which has cleansing properties in water.
A detergent has a large non-ionic hydrocarbon group and an ionic group like sulphonate group SO_3^-Na+ or sulphate group SO4-Na+. Examples of detergents are: Sodium n-dodecyl benzene sulphonate and sodium n-dodecyl sulphate. These are shown below:

$$CH_3 - (CH_2)_{11} - SO_3^-Na^+ \qquad CH_3 - (CH_2)_{11} - SO_4^- Na^+$$

Sodium n-dodecyl benzene sulphonate (A common detergent)

Sodium n-dodecyl sulphate (Another detergent)

The structure and cleansing action of a detergent is similar to that of soaps. A detergent molecule also consists of two parts: a long hydrocarbon chain which is water repelling (hydrophobic) and a short ionic part which is water attracting (hydrophilic). Detergents are prepared from long chain hydrocarbons obtained during refining of petroleum oil. They are generally used to make washing powders and shampoos.

Major differences between soaps and detergents are:

Soaps	Detergents
1. Soaps are the sodium salts (or potassium salts) of the long chain carboxylic acids (fatty acids). The ionic group in soaps is $-COO^-Na^+$.	1. Detergents are the sodium salts of long chain benzene sulphonic acids or long chain alkyl hydrogen sulphates. The ionic group in a detergent is $-SO_3^-Na^+$ or $-SO_4^-Na^+$
2. Soaps are not suitable for washing with hard water as they form scum.	2. Detergents can be used for washing even with hard water.
3. Soaps are biodegradable.	3. Some of the detergents are non-biodegradable.
4. Soaps have relatively weak cleansing action.	4. Detergents have a strong cleansing action.

Advantages of Detergents

Detergents have a number of advantages over soaps as washing agents:

- Detergents can be used even with hard water.
- Detergents have a stronger cleansing action.
- Detergents are more soluble in water.

Disadvantages of Detergents

Major disadvantage of detergents over soaps is that many detergents are not biodegradable and cannot be decomposed by micro-organisms like bacteria and thus cause water pollution in lakes and rivers. All the soaps are, however, biodegradable.

Q Give the preparation, properties and uses of ethanoic acid (Acetic acid).

Ans. Ethanoic acid (acetic acid) is well known in the form of vinegar. Vinegar contains about 5-8 % of ethanoic acid. It is present in biological fluids and plant extracts.

Preparation:- Ethanoic acid can be prepared by several methods.

i) By enzymatic oxidation of ethanol:- It can be obtained by the oxidation of ethanol by air in the presence of acetobactor enzyme.

$$\underset{\text{Ethanol}}{CH_3CH_2OH(l)} + \underset{\text{From air}}{2[O]} \xrightarrow{\text{acetobactor}} \underset{\text{Ethanoic acid (5 – 8\%)}}{CH_3COOH(aq)} + H_2O(l)$$

ii) It can be prepared by the hydrolysis of alkyl cyanide

$CH_3CN + 2H_2O \rightarrow CH_3COOH + NH_3$

iv) Methanol when reacted with carbon monoxide in the presence of iodine-rhodium catalyst gives ethanoic acid.

$CH_3OH(l) + CO(g) \xrightarrow{I2\ -Rh} CH_3COOH$

Methanol Carbon monoxide Ethanoic acid

Physical properties:- Some common physical properties of ethanoic acid are described below:-

1). At ordinary temp, ethanoic acid is a colourless liquid with a strong pungent smell and sour taste.
2). On cooling below 16.5^0C it forms ice-like crystals that is why, it is named as glacial acetic acid.
3). It has a corrosive action on the skin and causes blisters.
4). It is miscible with water due to the formation of hydrogen bonds with water molecules.
5). It dissolves sulphur, iodine and many other organic compounds.

Chemical properties:- The main chemical reactions given by ethanoic acid are described below:

1) With water:- In aqeous solutions it ionizes to produce H_3O+ and CH_3COO- ions.

$CH_3COOH(l) + H_2O(l) \rightleftharpoons CH_3COO-(aq) + H_3O+(aq)$

Ethanoic acid Ethanoate ion Hydronium ion

2) **Action on ltmus:-** Ethanoic acid is acidic in nature being acidic in nature, ethanoic acid terms blue litmus solution red.

3) **With sodium hydroxide:-** It reacts with strong alkali such as NaOH giving sodium ethanoate and water.

$CH_3COOH(aq) + NaOH(aq) \rightarrow CH_3COONa(aq) + H_2O(l)$

Ethanoic acid Sodium hydroxide Sodium ethanoate Water

7) **With metals**:- Ethanoic acid reacts with active metals to form metal ethanoates and H- gas.

$2CH_3COOH(aq) + 2Na(s) \rightarrow 2CH_3COONa(aq) + H_2(g)$

Ethanoic acid Sodium Sodium ethanoate Hydrogen gas

8) With sodium carbonate and sodium bicarbonate:-

Ethanoic acid decomposes sodium bicarbonate and sodium carbonate with a rapid evolution of CO_2 gas.

$Na_2CO_3(aq) + 2CH_3COOH(aq) \rightarrow 2CH_3COONa(aq) + H_2O(l) + CO_2(g)$

Sodium carbonate Ethanoic acid Sodium ethanoate Water Carbon dioxide

9) **Reaction with alcohols**:- Ethanoic acid reacts with alcohols in the presence of dehydrating agents e.g. concentrated H_2SO_4 to form ester.

$CH_3COOH(l) + C_2H_5OH(l) \rightleftharpoons CH_3COOC_2H_5 + H_2O$

Ethanoic acid Ethanol (H_2SO_4) Ethyl ethanoate.

The reaction of carboxylic acid with an alcohol to form an ester is called esterification.

Tests for carboxylic acids:-

Sodium bicarbonate test:- The organic compound to be tested is put in a test tube and a little amount of sodium bicarbonate is added to it. Evolution of CO_2 gas shows that the given compound is carboxylic acid.

Ester test for acids:- The organic compound is warmed with some ethanol and few drops of concentrated sulphuric acid. A sweet smelling ester shows that the organic compound is a carboxylic acid.

Uses of ethanoic acid:-

Ethanoic acid is used in the manufacture of various dyes, perfumes and rayons.
Salts of ethanoic acid are used in paints and also in certain medicines.
It is used for making synthetic vinegar which is used in pickles etc.
It is used as a solvent.
It is used for coagulating the latex.
It is used for making white lead.
It is used for making cellulose acetate.
It is used for making acetone.

Q. Give the preparation, properties and uses of ethyl alcohol (ethanol).

Ans. Ethyl alcohol (C_2H_5OH) is the second number of the homologous series of alcohols. Ethyl alcohol is the alcohol of wine, bear, whisky and similar beverages. Ethyl alcohol is also known as grain alcohol, since it can be prepared from starchy grains.

Preparation:- It is prepared on a large scale by the fermentation of sugars present in molasses (cheap source of glucose, fructose and sucrose) in the presence of yeast. The enzymes **invertase** and **zymase** present in the yeast act as catalyst in converting sugar into ethanol and $C0_2$.

$$C_{12}H_{22}O_{11} + H_2O \xrightarrow{\text{Invertase}} C_6H_{12}O_6 + C_6H_{12}O_{12}$$

Sucrose (in molasses) → Glucose + Fructose

$$C_6H_{12}O_6 \xrightarrow{\text{zymase}} 2C_2H_5OH + 2CO_2\,(g)$$

Glucose/Fructose → Ethyl alcohol

It is obtained by reacting ethene with water in the presence of phosphoric acid (H_3PO_4) at a temperature of 300^0C and 60 -70atm.

$$C_2H_4 + H_2O \xrightarrow[300^0c,\ 60\text{-}70\ atm]{H_3PO_4} C_2H_5OH$$

Ethene + water → Ethanol

Physical properties:-

It is a colourless, volatile liquid with a characteristic pleasant odour and burning taste.
It boils at 78°C and freezes at -118^0C.

Its specific gravity is 0.789
It is soluble in water as well as in all organic and inorganic solvents.
It is a neutral compound and has no effect on the colour of litmus.
It is lighter than water.
It is poisonous in nature.
. It is a covalent compound and hence does not conduct electricity.

Chemical Properties of Ethanol:

1. Reaction with Na or K :- Ethyl alcohol reacts with sodium to form the corresponding ethoxides and H - gas.

$$2\,C_2H_5OH + 2\,Na \longrightarrow \underset{\text{Sodium Ethoxide}}{2C_2H_5ONa} + H_2\,(g)$$

2. Reaction with Phosphorus halide:- It reacts with phosphorus halide to give ethyl halide.

$$C_2H_5OH + PCl_5 \longrightarrow \underset{\text{Ethyl chloride}}{C_2H_5Cl} + \underset{\text{phosphorous oxychloride}}{POCl_3} + HCl$$

3. Combustion:-It burns in air with a blue flame to form CO_2 and water vapour.

$$C_2H_5OH + 3O_2 \xrightarrow{\text{Combustion}} 2\,CO_2 + 3\,H_2O + \text{Heat} + \text{light}$$

4. Oxidation:- Alkaline potassium permanganate or acidified dichromate solution oxidizes ethanol to ethanoic acid (acetic acid)

$$CH_3CH_2OH + 2[O] \xrightarrow[\text{Or acidified } K_2Cr_2O_7]{\text{Alkaline } KMnO_4} \underset{\text{Ethanoic acid.}}{CH_3COOH} + H_2O$$

5.Reaction with ethanoic acid (Esterification reaction):- Ethanol when heated with ethanoic acid in the presence of concentrated H_2SO_4 to form a sweet smelling ester (ethyl ethanoate).

$$\underset{\text{Ethanoic acid}}{CH_3COOH} + \underset{\text{Ethanol}}{C_2H_5OH} \xrightarrow{\text{Conc.}H_2SO_4} \underset{\text{EthylEthanoate}}{CH_3COOC_2H_5} + \underset{\text{Water}}{H_2O}$$

In this reaction, conc. H_2SO_4 acts as a catalyst as well as a dehydrating agent.

6.Dehydration:- When ethanol is heated with excess of conc. Sulphuric acid at 170^0 C, it gets dehydrated to form ethane.

$$\underset{\text{Ethanol}}{CH_3CH_2OH} \xrightarrow[170^0\,C]{\text{Conc } H_2SO_4} \underset{\text{Ethene}}{CH_2=CH_2} + \underset{\text{Water}}{H_2O}$$

Tests for an alcohol

Sodium metal test:- Add a small piece of sodium metal to the organic liquid , taken in a dry test tube. If bubbles of hydrogen gas are produced , it indicates that the given organic liquid is an alcohol.

Ester tests for alcohol:- The organic compound is warmed with some ethanoic acid and a few drops of conc. sulphuric acid. A sweet smell indicates that the given organic compound is an alcohol.

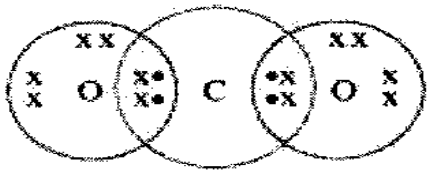
Uses:

1. It is used in the manufacture of alcoholic drinks, like whisky, wine, bear etc.

3. It is used in the manufacture of drugs and perfumes.
3. It is used in thermometers and spirit lamps.
4. It is used as a preservative for biological specimens.
5. It is used in the manufacture of acetaldehyde, acetic acid, ethyl chloride and ethyl acetate.
6. It is used as an industrial solvent.
7. It is used in hospitals as an antiseptic to sterilize wounds and syringes.
12. It is used in varnishes.
13. It is used in the manufacture of synthetic rubber.
14. It is used as a substitute of petrol in scooters and cars.
15. It is used as antifreeze for automobile radiators.

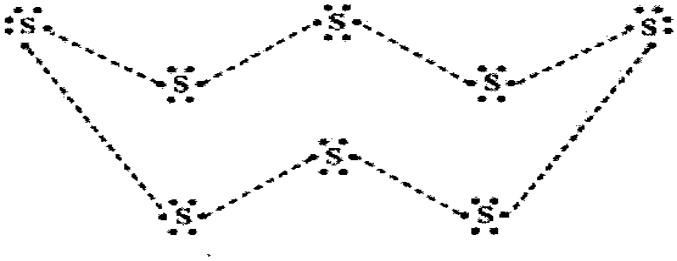
Q What would be the electron dot structure of carbon dioxide which has the formula CO_2?

Ans. Electron dot structure of CO_2 is



Q What would be the electron dot structure of a molecule of sulphur which is made up of eight atoms of sulphur? (Hint- the eight atoms of sulphur are joined together in the form of a ring.)

Ans. Electron dot structure of a sulphur molecule



Q How many structural isomers can you draw for pentane?

Ans. Three structural isomers are possible for pentane.

(i)

$$CH_3 - CH_2 - CH_2 - CH_2 - CH_3$$

(ii)

$$CH_3 - CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}} - CH_3$$

(iii)

$$CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{\displaystyle |}{\underset{\displaystyle |}{C}}}} - CH_3$$

Q What are the two properties of carbon which lead to the huge number of carbon compounds we see around us?

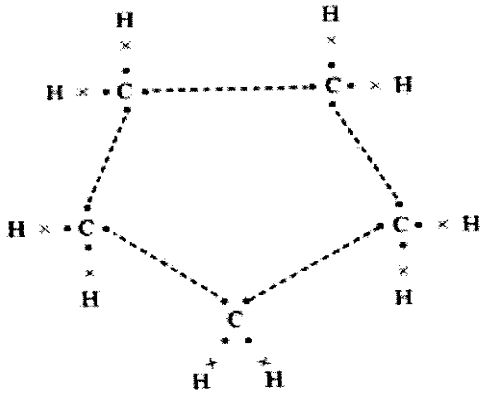
Ans. The two features of carbon that give rise to a large number of compounds are as follows:

i) **Catenation-** It is the ability to form bonds with other atoms of carbon.

ii) **Tetravalency**- With the valency of four, carbon is capable of bonding with four other atoms.

Q What will be the formula and electron dot structure of cyclopentane?

Ans. The formula for cyclopentane is C_5H_{10}. Its electron dot structure is given below.



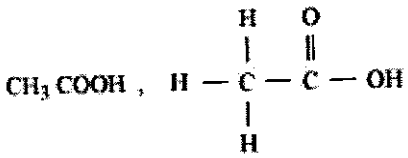
Q

Draw the structures for the following compounds:

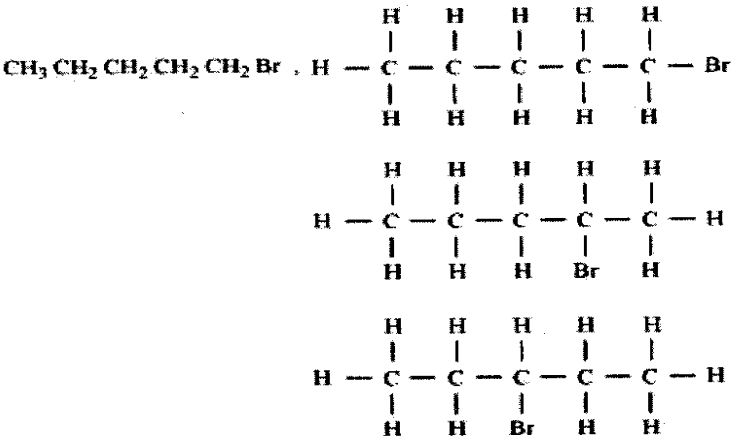
i) Thanoic acid ii) Bromopentane* iii) Butanone iv) Hexanal

Ans. * Are structural isomers possible for bromopentane?

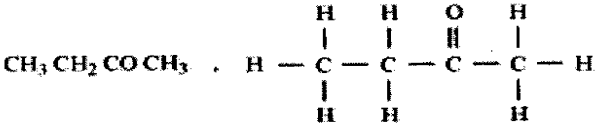
i)



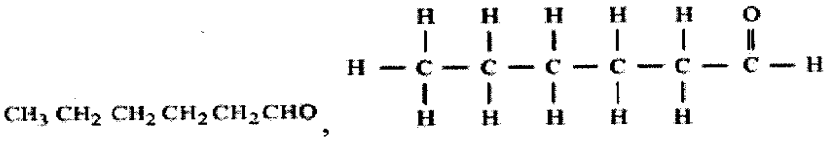
ii) There are many structural isomers possible for bromopentane. Among them, the structures of three isomers are given.



(iii)



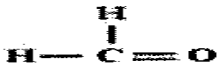
(iv)



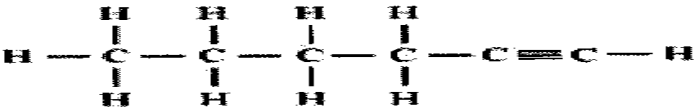
Q How would you name the following compounds?

(i)

(ii)

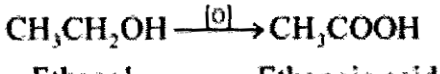


(iii)



Ans. i) Bromoethane ii) Methanal (formaldehyde) iii) Hexyne

Q Why is the conversion of ethanol to ethanoic acid an oxidation reaction?



Ans. Since the conversion of ethanol to ethanoic acid involves the addition of oxygen to ethanol, it is an oxidation reaction.

Q A mixture of oxygen and ethyne is burnt for welding. Can you tell why a mixture of ethyne and air is not used?

$$2HC \equiv CH + 5O_2 \longrightarrow 4CO_2 + 2H_2O + Heat$$

Ans. When ethyne is burnt in air, it gives a sooty flame. This is due to incomplete combustion caused by limited supply of air. However, if ethyne is burnt with oxygen, it gives a clean flame with temperature 3000^0C because of complete combustion. This oxy-acetylene flame is used for welding. It is not possible to attain such a high temperature without mixing oxygen. This is the reason why a mixture of ethyne and air is not used.

Q How would you distinguish experimentally between an alcohol and a carboxylic acid?

Ans. We can distinguish between and alcohol and a carboxylic acid on the basis of their reaction with carbonates and hydrogen carbonates. Acid reacts with carbonate and hydrogen carbonate to evolve CO_2 gas that turns lime water milky.

Metal Carbonate / Metal Hydrogen carbonate + Carboxylic acid
↓
Salt + Water + Carbon dioxide

Alcohols, on the other hand, do not react with carbonates and hydrogen carbonates.

Q Would you be able to check if water is hard by using a detergent?

Ans. Detergents are ammonium or sulphonate salts of long chain carboxylic acids. Unlike soap, they do react with calcium and magnesium ions present in hard water to form scum. They give a good amount of lather irrespective of whether the water is hard or soft. This means that detergents can be used in both soft and hard water. Therefore, it cannot be used to check whether the water is hard or not.

Q People use a variety of methods to wash clothes. Usually after adding the soap, they 'beat' the clothes on a stone, or beat it with a paddle, scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to get clean clothes?

Ans. A soap molecule has two parts namely hydrophobic and hydrophilic. With the help of these, it attaches to the grease or dirt particle and forms a cluster called micelle. These micelles remain suspended as a colloid. To remove these micelles (entrapping the dirt), it is necessary to agitate clothes.

Q Ethane, with the molecular formula C_2H_6 has

a) 6 covalent bonds. b) 7 covalent bonds.
c) 8 covalent bonds d) 9 covalent bonds.

Ans. b) Ethane has 7 covalent bonds.

Q Butanone is a four-carbon compound with the functional group

a) Carboxylic acid b) Aldehyde
c) Ketone d) Alcohol

Ans. c) The functional group of butanone is ketone.

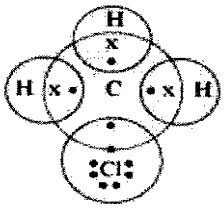
Q While cooking, if the bottom of the vessel is getting blackened on the outside, it means that

a) the food is not cooked cooked completely b) the fuel is not burning completely
c) the fuel is wet. d) the fuel is burning completely.

Ans. b) While cooking, if the bottom of the vessel is getting blackened on the outside, then it means that the fuel is not burning completely.

Q Explain the nature of the covalent bond using the bond formation in CH_3Cl .

Ans. Carbon can neither lose four of its electrons nor gain four electrons as both the processes require extra amount of energy and would make the system unstable. Therefore, it completes its octet by sharing its four electrons with other carbon atoms or with atoms of other elements. The bonds that are formed by sharing electrons are known as covalent bonds. In covalent bonding, both the atoms share the valence electrons, i.e. the shared electrons belong to the valence shells of both the atoms.

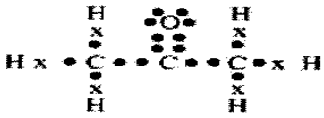


Here, carbon requires 4 electrons to complete its octet, while each hydrogen atom requires one electron to complete its duplet. Also, chlorine requires an electron to complete the octet. Therefore, all of these share the electrons and a s a result, carbon forms 3 bonds with hydrogen and one with chlorine.

Answer: (a) Ethanoic acid

(b) H2S

(c) Propanone



(d) F2

Q Draw the electron dot structures for

a) ethanoic acid b) H_2S
c) propanone d) F_2

Q What is homologous series? Explain with an example.

Ans. A homologous series is series compounds that have different numbers of carbon atoms but contain the same functional group.

For example, methane, ethane, propane, butane, etc. are all part of the alkane homologous series.

The general formula of this series is C_nH_{2n+2}
Methane CH_4
Ethane CH_3CH_3
Propane $CH_3CH_2CH_3$
Butane $CH_3CH_2CH_2CH_3$
It can be noticed that there is difference of $–CH_2$ unit between each successive compound.

Q How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties?

Ans:

- Ethanol is a liquid at room temperature with a pleasant odour while ethanoic acid has vinegar-like smell. The melting point of ethanoic acid is 17^0C. This is below room temperature and hence, it freezes during winters.
- Ethanoic acid reacts with metal carbonates and metal hydrogencarbonates to form salt, water, and carbon dioxide gas while ethanol does not react with them.

Metal Carbonate / Metal Hydrogen carbonate + Carboxylic acid

↓

Salt + Water + Carbon dioxide

For example,

$$2CH_3COOH + Na_2CO_3 \longrightarrow 2CH_3COONa + H_2O + CO_2$$

Metal Carbonates/Metal Hydrogencarbonates + Alcohols

↓

No reaction

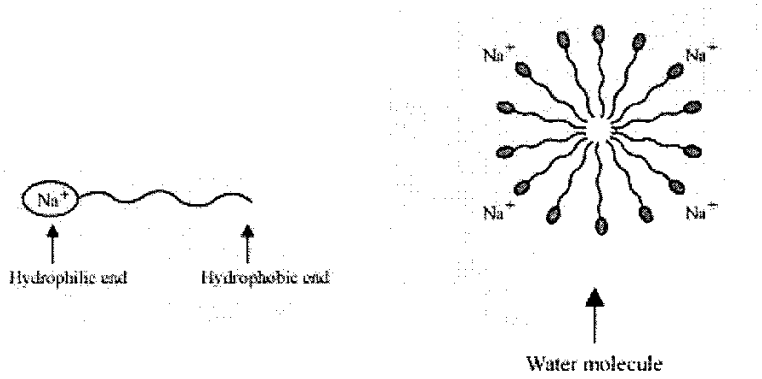
For example,

$$CH_3CH_2OH + Na_2CO_3 \longrightarrow \text{No reaction}$$

Q Why does micelle formation take place when soap is added to water? Will a micelle be formed in other solvents such as ethanol also?

Ans. A soap is a sodium or potassium salt of long chain fatty acids. It has one polar end and one non-polar end. The polar end is hydrophilic in nature i.e., it is attracted towards water. The non-polar end is hydrophobic but lipophilic, i.e. it is attracted towards hydrocarbons.

When soap is added to water, soap molecules arrange themselves in a cluster to keep the non-polar portion out of water such that the non-polar ends are in the interior of the cluster and the polar ends are on the surface of the cluster. Since the dirt present on clothes is organic in nature and insoluble in water, the hydrophobic ends of the clusters attach themselves to the dirt. This cluster formation in which the dirt is entrapped is the micelle.



Micelle formation does not occur in alcohol because the alkyle chain of soap becomes soluble in alcohol.

Q Why are carbon and its compounds used as fuels for most applications?

Ans. Most of the carbon compounds give a lot of heat and light when burnt in air. Saturated hydrocarbons burn with a clean flame and no smoke is produced. The carbon compounds, used as a fuel, have high calorific values. Therefore, carbon and its compounds are used as fuels for most applications.

Q Explain the formation of scum when hard water is treated with soap.

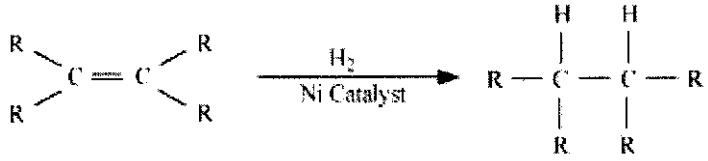
Ans. Soap does not work properly when the water is hard. A soap is a sodium or potassium salt of long chain fatty acids. Hard water contains salts of calcium and magnesium. When soap is added to hard water, calcium and magnesium ions present in water displace sodium or potassium ions from the soap molecules forming an insoluble substance called scum. A lot of soap is wasted in the process.

Q What change will you observe if you test soap with litmus paper (red and blue)?

Ans. Since soap is basic in nature, it will turn red litmus paper into blue. However, the colour of blue litmus will remain blue.

Q What is hydrogenation? What is its industrial application?

Ans. Hydrogenation is the process of addition of hydrogen. Unsaturated hydrocarbons are added with hydrogen in the presence of palladium and nickel catalysts to give saturated hydrocarbons.



This reaction is applied in the hydrogenation of vegetables oils, which contain long chains of unsaturated carbons.

Q Which of the following hydrocarbons undergo addition reactions:
C_2H_6 , C_3H_8 , C_3H_6, C_2H_2 and CH_4.

Ans. Unsaturated hydrocarbons undergo addition reactions. Being unsaturated hydrocarbons, C_3H_6 and C_2H_2 undergo addition reactions.

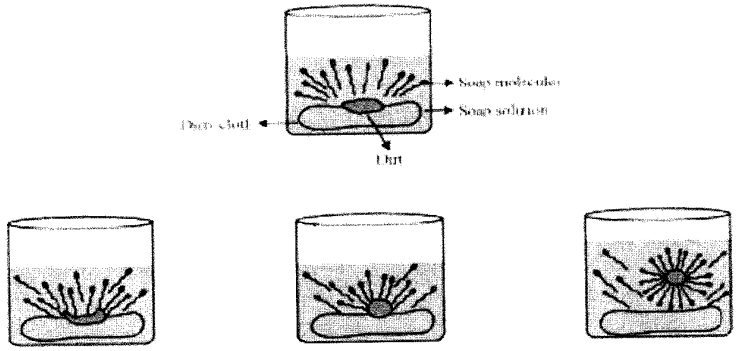
Q Give a test that can be used to differentiate chemically between better and cooking oil.

Ans. Butter contains saturated fats. Therefore, it cannot be hydrogenated. On the other hand, oil has unsaturated fats. That is why it can be hydrogenated to saturated fats (solids).

Q Explain the mechanism of the cleaning action of soaps.

Ans. Cleansing action of soaps:

The dirt present on clothes is organic in nature and insoluble in water. Therefore, it cannot be removed by only washing with water. When soap is dissolved in water, its hydrophobic ends attach themselves to the dirt and remove it from the cloth. Then, the molecules of soap arrange themselves in micelle formation and trap the dirt at the centre of the cluster. These micelles remain suspended in the water. Hence, the dust particles are easily rinsed away by water.



Coordination in plants

Plants do not possess nervous system and depend entirely on chemical coordination. Their responses are slower and they often involve growth. Growth in turn, can result in movement of an organ. Plants are coordinated by chemicals which have their effect on some aspects of growth, they are called growth substances. As some of these chemicals stimulate plant growth while some others retard the rate of growth, these chemicals are also referred to as plant growth regulators. Growth regulators include growth promoters (Auxins, gibberellins, cytokinins) as well as growth inhibitors (Abscisic acid). These are essential for the balanced and controlled development of plants. These are commonly known as auxins, cytokinins, gibberellins, abscissic acid and ethylene. These are also called phytohormones.

Plant hormones

Plant hormones are defined as the organic substances which are synthesized in minute quantities in any part of the plant and transported to another part where they are active. There are five main types of naturally occurring hormones. They are:

1. Auxins
2. Gibberellins
3. Cytokinins
4. Ethylene
5. Abscicic acid (ABA).

I. **Auxin**: The most common natural auxin is indole 3-acetic acid or IAA.

Discovery: - It was isolated for the first time by a Dutch botanist F.W. Went in 1928. The name Auxin was given by Went and he concluded no growth can occur without auxin.

Functions:

1. It promotes cell enlargement and cell differentiation in plants.
2. It is essential for the root formation on stem cuttings.
3. It suppresses the growth of lateral buds.
4. It promotes flowering in certain plants such as pine apple but delays it in lettuce.
5. Auxins are found to initiate many physiological processes, like protein synthesis, water uptake, respiration, seed germination.
6. It promotes fruit growth.
7. It prevents premature falling of leaves & fruits.
8. Auxins induce parthenocarpy in a number of plants.

   Auxins are present in root and shoot apices.

II. Gibberellin: - They occur in roots, stem, leaves, flower buds, fruits and immature seeds.

Discovery: Gibberellins were discovered in 1926 by E. Kurosawa, a Japanese plant pathologist. Kurosawa while working in the rice fields observed that rice seedlings grew much taller than the others such plants were found to be infected by a fungus Gibberella fujikuroi. The disease was known as 'Bakanae disease' Yabuta and Sumiki (1938) demonstrated that some substance secreted by the fungus was probably responsible for enlongation growth of the seedlings. They isolated this substance from Gibberella fujikuraoi and named it Gibberellic acid.

Functions:-

i. G.ibberellin causes the elongation of stem and leaf sheaths.
ii. Gibberellic acid stimulates cell division.
iii. It helps in breaking the dormancy in seeds and buds.
iv. It also promotes fruit growth.
v. It includes parthenocarpy in many plants e.g. tomato.

Cytokinins: - They are synthesized in root tips from where they reach shoots.

Discovery: Miller and Skoog in 1955 discovered a substance which was known to activate cell division. They named this compound as kinetin. The first natural cytokinin was zeatin.

Functions:

i) The most important function of cytokinins the promotion of cell division.
ii) Cytokinins along with auxins are required for the growth of cellular in tissue culture experiment.
iii) It promotes cell enlargement.
iv) It can break seed dormancy and also promote seed germination.
v) Application of cytokinins delays the phenomenon of senescence or ageing.
vi) It provides resistance to plants against very high and low temperature from injuries.
vii) In some cases cytokinins have been found to induce flowering.
viii) It enhances chlorophyll development and the rate of synthesis of chlorophyll.
ix) They over come apical dominance and allow sprouting of lateral buds.
x) It regulates phloem transport.

Ethylene: - Ethylene is present as a volatile gas in atmosphere. It is produced in all living tissues of plants. It moves through diffusion process.

Discovery:-Denny (1924) observed that ethylene gas was highly effective in inducing fruit ripening. Zimmerman et al (1931) found that it induces fruit ripening. Later on physiological studies led to discovery of ethylene as a natural product of fruit ripening.

Functions:-

1. It has inhibitory effect on growth.
2. It promotes transverse or is diametric growth and inhibits longitudinal growth.
3. It induces senescence or ageing.
4. It induces yellowish of leaves.
5. It induces flowering in some plants like pine apple.
6. Ethylene stimulates abscission of various plant parts.
7. It suppresses bud growth.
8. It induces ripening in fruit.
9. It induces epinasity. (downward bending of leaves)
10. It induces germination in some species.
11. It induces root their formation.

Abscisic acid– (ABA):- ABA are thought to be formed in leaves and then transported to apices through phloem. These work as growth inhibitors.

Discovery:-Corn and Addicot (1963) while working on shedding of cotton balls found that a chemical substance abcisin II is responsible for their shedding. This substance was named as Abscisic acid (ABA).

Functions:

1. It has inhibitory effect on growth.
2. It promotes senescence or ageing.
3. It promotes abscission or falling of leaves, fruits & flowers of plants.
4. It favours stomatal closure.
5. ABA plays an important role in plants during water stress and during drought conditions.
6. It is known to inhibit the process of flowering, fruit and seed development.

Plant Movement:-

These are the changes in orientation of some plant parts in relation to others caused by intrinsic (internal) or extrinsic (external) stimuli.

There are two types of movements shown by plants:
Growth movements (tropic movements or tropism) and
Non Growth movements (nastic movements)

Types of movements in plants

The movements in plants due to external stimuli are of two types:

i. Tropic movements
ii. Nastic movements

Tropic movements:- These are induced growth movements that occur due to differential growth. These are the unidirectional movement of plants in response to external stimuli such as light, force of gravity, chemicals, water, are called tropic movements. The movements are either towards or away from the stimuli. These movements are slow. The phenomenon of such movements is called as tropism. Depending upon the nature of external stimulus the tropic movements are of following types:

i. **Geotropism:-** The movement of a plant in response to the force of gravity is called geotropism or geotropic movement. Different parts of a plant respond differently to the stimulus of gravity. Primary root always moves in downward direction. This is known as positive geotropism. The shoot moves upwards just opposite to the force of gravity. Hence the stem of a plant shows negative geotropism.
ii. **Phototropism:-** The movement of plant organs in response to the effect of light is known as phototropism. In simple words the response of a plant to the light is called phototropism. When some parts of a plant for example stem moves towards the light it is called positive phototropism, on the other hand when some organs for example, roots move away from the light it is called negative phototropism.
iii. **Hydrotropism**:- The movement of plant parts in response to the effect of water stimulus is known as hydrotropism. In simple words the response of a plant part to water is called hydrotropism. If some parts of a plant move towards the water it is called positive hydrotropism. While if some plant parts move away from the water it is called negative hydrotropism. Roots are positively hydrotropic as they bend towards the source of water. Sporangiophores of many moulds grow away from moist substratum, there by showing negative hydrotropism.
iv. **Chemotropism**:- The movement of a plant part in response to the stimulus of a chemicals is called chemotropism. But if the plant moves towards the chemical stimulus, it is called positive Chemotropism. But if the plant moves away from the chemical stimulus it is called negative chemotropism. The growth of pollen tube through the style towards the embryo sac is the example of positive chemotropism. Roots grow away from harmful acids there by showing negative chemotropism.

Nastic movement

Nastic movements are non directional induced movements that occur due to turgor changes in the cells. Such movements are due to the stimulus of light, temperature or contact but the direction of response is determined by the direction of stimuli. However, from whichever direction the stimulus is applied, it affects all the parts of the organs of a plant equally and they always move in the same direction. They reveal immediate response to stimulus but do not involve growth.

Nastic movements are of the following two types:

i) Seismonastic movement ii) Nyctinastic movement

i) **Seismonastic movement:-** These are the movements which occur in response to touch. The best example of seismonastic movement is the movement of the leaves of the sensitive touch me not plant Mimosa pudica. Leaves of touch me not plant droops rapidly when touched. It is due to turgidity of cells at the base. Here touch response is diffused affecting the entire leaf. Thus, the leaf droops down due to loss of turgor pressure. After sometime, the leaves regain their original shape. This phenomenon is also commonly called as thigmonasty.

ii. **Nyctinastic movement or Sleep movements: -** The diurnal (change in day and night) movements of leaves and flowers of some species in day and night are called nyctinastic movements. Since these movements occur in response to day and night, they are also known as sleep movements. These are movements due to turgor change in cells. Depending upon the stimulus they may be photonastic or thermonastic movements.

When the movement is induced by the change in light intensity, it is called photonastic movement e.g. dandelion flower. It opens in the morning in bright light and closes in the evening when the light fades.

The movement due to change in temperature, is called thermonastic movement. The flower of tulips (Tulipa) and Crocus show thermonastic movements.

Photoperiodism and flowering.

The length of the day (in hours) during which sunlight is available to the plants is called photoperiod. The effect of photoperiod on the germination of seeds and flowering in plants is called photoperiodism.

Photoperiod acts as a stimulus for plants. Plants respond to this stimulus with the help of a special kind of pigment present in them in very small amounts. The special pigment is called phytochrome which is a blue green pigment.

Garner and Allard in 1920 recognized three classes of plants according to their photoperiodic responses.

i) Short day plants ii) Long day plants and iii) Day neutral plants

i) **Short day Plants:-** A short day plant is one that flowers on photoperiods shorter than the critical day length e.g. tobacco plant.

ii) **Long Day Plants:-** A long day plant is one that flowers on photoperiods longer than critical day length e.g. wheat plants.

iii) **Day Neutral Plants:-** These plants do not require specific photoperiods to flower e.g. cucumber, maize, etc.

Coordination In Animals:

Evolution of multicellularity in animals necessitated the development of some system for the control and coordination of the activities of various cells of the body. Such a control and coordination, in fact, requires

i) Gathering information about changes in the external environment,

ii) Transmitting this information to the internal cells located away from the body surface, and

iii) Exchange of information between the cells situated away from each other.

In lower multicellular animals, the coordination takes place through the nervous system. However, in higher animals, coordination takes place through two types of control systems: nervous system and endocrine system.

1. **Nervous System:-** The nervous system is composed of specialized cells called neuron (nerve cells) which exercise control by sending electrical signals called

nerve impulses. The nervous control is speedy and flexible but its effect is localized.

2. **Endocrine System**:-The endocrine system consists of specialized glands (endocrine glands) which bring about control by sending chemical messengers termed hormones. The hormonal control is usually slow acting and its effect is diffuse.

Nervous System In Animals: Except sponges, all multicellular animals possess simple or complex nervous system. In all these animals, nervous system is comprised of nervous tissue having specialized cells called neurons or nerve cells to respond to stimuli and coordinate animal's activities.

Nerve cells or neurons are, in fact, the structural and functional units of nervous system. In higher multicellular animals, the nervous tissue consists of nerve cells of neurons, nerve fibres, bundle of nerve fibres forming nerves, packing cells (neuroglia), ependymal cells and neurosecretory cells.

Arrangement Of Neurons

The neurons lie end-to-end in chains to transmit nerve impulses in the animal body. Each neuron receives an impulse through its dendrites and passes it on to to the next neuron in the chain through its axon via cell body.

Synapse: The neurons are not connected. There occurs a very minute gap between terminal portion of axon of one neuron and the Dendron of other neuron. This minute gap is called synapse. Synapse is thus the functional junction between neurons. At the synapse, axon terminal comes in close proximity to the dendron terminal of next neuron. Axon terminal is expanded to from presynaptic knob. On the other hand, the dendrite terminal forms post-synaptic depression. In between the two, lies a narrow fluid filled space called synaptic cleft.

As the nerve impulse reaches the presynaptic knob, the synaptic vesicles get stimulated to release a chemical called neurotransmitter in the synaptic cleft. The neurotransmitter molecules diffuse across the gap (synapse) to come in contact with the chemoreceptor sites in the post-synaptic membrane. In this way, nerve impulse passes across the minute gap (synapse) to stimulate dendron of other neuron.

The synapse acts as a one-way valve to conduct nerve impulse in one direction only. This is so because chemical substance, called neurotransmitter, is secreted by synaptic vesicles only on one side of the gap, i.e. on axon's side. The neurotransmitter carries message across the synapse and passes it to the dendron of the other neuron.

In this way, impulses travel across the neurons only in one direction, i.e. from axon of one neuron to dendron of other neuron through a synapse.

Define:-

Nerve Impulse:-

It is a self propagated electrochemical current that travels from one neuron to another neuron for the passage of message.

Receptor:- It is a nerve cell or group of nerve cells which is sensitive to a specific stimulus or to specific change in the environment.

Effector:- It is a muscle or gland in specific part of the body which produces suitable response.

Types Of Neurons

The neurons are of three types:

i) Sensory (receptor) neurons, ii) motor (effector) neurons and (iii) relaying (connector) neurons.

i) **Sensory (Receptor) Neurons:-** These often occur in sense organs and receive stimuli by their dendrites. The sensory neurons transmit impulses towards the central nervous system (brain and spinal cord) through their axons.

ii) **Motor (Effector) Neurons:-** The dendrites of these neurons synapse with axons of sensory neurons in central nervous system. They transmit impulses from central nervous system towards effectors (muscles or glands). The latter respond to stimuli.

iii) **Relaying (connector) Neurons:** Thse occur in the central nervous system (brain and spinal cord). These serve as links between sensory and motor neurons for distant transmission of nerve impulses.

Sensory Receptors:-

It is a cell or group of cells specialized to detect a particular stimulus and to initiate the transmission of impulses via. The sensory nerves.

There are five receptors or sense organs through whicvh the animals receive stimuli or external informations. These receptors are phonoreceptors for sound (ears), gustatory receptors for taste (tongue), olfactoreceptors for smell (nose) and thigmoreceptors for touch (skin). The receptors pass information to the brain. The brain transmits motor impulses to appropriate effectors which produce suitable responses.

Structure of neuron:

Neuron is the structural and functional unit of nervous system. It has a special structure to receive, conduct and transmit impulses. It varies greatly in shape and size. A neuron consists of three prominent parts: i)Cell body ii) Dendrites iii) Axon

i) **Cell body:-** The cell body of a neuron is called as cyton or soma. This cyton is broad, rounded, pyriform or stellate part of neuron. It has abundant cytoplasm called neuroplasm and a relatively large, speherical nucleus. The cytoplasm has mitochondria, golgi apparatus, neurofibrils, neurotubules and special granules called Nissl's granules or Tigroid body. Nissl granules were discovered by a German neurologist Franz Nissl. They are formed by the combination of ribosomes with rough endoplasmic reticulum and are meant for the synthesis of neurotransmitter (acetyl choline)

   Centrioles are absent in neurons. Cell body is concerned with metabolic maintenance and growth. It also receives nerve impulses from dendrites and transmits them to axam.

ii) **Dendrites (singular Dendron):-** These are several short, tapering, much branched protoplasmic processes stretching out from the cell body of a neuron. Dendrites are the part of neuron where sensation is acquired. The information then travels as an electric impulse towards the cell body. Dendrites contain Nissl's granules and neurofibrils.

iii) **Axon:-** It is single, long, cylindrical protoplasmic process of uniform diameter arising from cell body. At its terminal end, it is highly branched and the terminal branches are called terminal arborization. At the ends of terminal arborization, are swollen structures called synaptic knobs that have a neurotransmitter called acetyl choline in them. Acytyl choline diffuses out at the time of conduction of nerve impulse.

Axon is covered with one or two sheaths. Sheathed axon is termed as nerve fibre. The cell membrane of the axon is called axolemma and its cytoplasm is termed axoplasm. It lacks Nissl's granules. However, neurofibrils are present. The single sheath present over the axon is made of Schwann cells and is called neurilemma. The axon may have an additional insulating and protective sheath of myelin around it. It is present between neurilemma and axon. Axons having myelin sheath are termed myelinated fibres and those without this sheath are termed non myelinated nerve fibres. At intervals, myelinated nerve fibres possess unmyelinated areas called nodes of Ranvier.

Characteristics of neurons:

i) They do not divide.
ii) They are formed shortly after birth.
iii) They are not repaired, when injured.
iv) They use only glucose as a respiratory substrate.
v) They die, if deprived of oxygen for over 5 minutes.

Functions of neurons:

The information acquired at the end of the dendritic tip of a neuron sets off a chemical reaction which creates an electrical impulse. The impulse travels from the dendrite along the axon of its end. At the end of axon, the electrical impulse sets off the release of some chemical, which cross the synapse and start a similar impulse in the dendrite of next neuron. In this way, nerve impulses travel in the body. Thus, nervous tissue is made up of an organized network of neurons which are specialized for conducting information via electrical impulse from one part of body to another.

Reflex Actions, Involuntary And Voluntary Actions

Animals perform three types of actions. These actions are:

- Reflex actions.
- Involuntary actions.
- Voluntary actions

Reflex actions:- Reflex action was discovered by Marshal Hall (1833). A reflex action may be defined as a spontaneous, unconscious automatic and mechanical response to a stimulus, acting on a specific receptor, without the will of an animal.

Need for Reflex Action:- The receptors, present on various body parts, receive stimuli and transmit information in the form of nerve impulses to the central nervous system which has various coordination centres where the information is processed. The processing is done on the basis of information and experiences already stored. The message is then sent by coordination centres through motor neurons to appropriate regions of the body which accordingly respond and react. The whole process takes some

time. However in certain situations, sensation requires immediate response as time used for processing may cause harm to the body. In such situations, reflex actions occur.

Examples. Blinking of eyes, movement of diaphragm during respiration, coughing, yawning, sneezing etc.

What Happens in Reflex Actions?

In reflex action, fine tips (dendrites) of receptors (sensory neurons) quickly relay a message (electric impulse) via sensory nerves to the spinal cord. The spinal cord then sends information (impulse) via motor nerves to effectors (muscles or glands) which show response. The path taken by nerve impulses in a reflex action is called reflex arc.

Reflex Arc: The path taken by nerve impulse in a reflex action is called reflex arc. It consists of five parts:

i) **Receptor**: It is a specific group of cells or organ, the neurons of which receives a stimulus and set up a sensory impulse.

ii) **Sensory (Afferent) Nerve:-** It carries sensory impulse from the receptor to the central nervous system.

iii) **A Portion of Central Nervous System:-** It is spinal cord or brain. Its neurons analyse and interpret the sensory impulse and set up an appropriate motor impulse. Accordingly, reflexes are termed spinal reflexes or cerebral reflexes.

iv) **Motor (efferent) Nerve:-** It carries motor impulse from the central nervous system to specific effectors (muscle fibres or gland cells).

v) **Effector:** It may be muscle fibres or gland cells. Here, impulse terminates and response occurs as per instructions received from central nervous system.

For **e**xample when our hand accidently touches a hot object, the heat is sensed by thermo receptors present in the skin of hand. The stimulus triggers nerve impulse in sensory (receptor) neuron. It transmits message to the spinal cord. In the spinal cord, impulse is passed on to the relay (connector) neuron which, in turn, passes it to the motor neuron. The motor neuron transmits the instruction to a muscle in our arm. The arm muscle contracts and pulls our hand away from the hot object. Such reflexes which involve spinal cord are also termed spinal reflexes.

Significance of Reflex Action

1. It checks overloading and overtaxing of brain.
2. It results in quick response to otherwise harmful stimuli without the processing done by coordinating centres of central nervous system.
3. It has survival value.

Involuntary Actions

Involuntary muscular actions are performed by the animal without its will. These occur automatically and the animal has no choice in it. Such actions are meant for controlling and coordinating the functioning of internal organs. Many of these involuntary actions are controlled by the midbrain and hind brain. Regular breathing of heart, blood pressure, movements of diaphragm during normal respiration, peristaltic movements in the oesophagus, salivation, vomiting, movement of the internal viscera etc. are all involuntary actions and are controlled by hind brain.

Voluntary Actions

Voluntary muscular actions are performed by the animal with its will. In each voluntary action, the animal exercises its choice so that the same stimulus may receive different responses at different times depending upon the situation. For instance, on seeing a snake in the way, one may run away on first occasion or call for help on second occasion or try to kill it to save himself on the third occasion. All such actions are voluntary

actions that are controlled by cerebellum part of hind brain. Similarly, walking in a straight line, riding a bicycle, picking up a pencil are also voluntary actions controlled by cerebellum.

How Does the Nervous Tissue Cause Action?

The terminal part of axon of motor neuron synapses with the membrane of the muscle (motor end plate). When the nerve impulse from CNS reaches the muscle, the muscle fibres show movement. The muscle fibres, in fact, have special proteins that change their shape and their arrangement in response to nerve impulses. New arrangement of these proteins gives the muscle different shapes.

Human Nervous System

Human nervous system is the most complex. It is divided into two main parts:

i) Central nervous system

ii) Peripheral nervous system

i) **Central Nervous System (CNS):-** It is hollow and lies on the mid dorsal part along the main (longitudinal) axis of the body. It is covered externally by part of axial skeleton. The CNS, in turn, consists of two parts:

   a) Brain or encephalon situated in the head.

   b) Spinal cord or myelon located in the neck and trunk.

a) **Brain (Encephalon):-** The brain is the widest and the uppermost part of the central nervous system. It is the highest coordinating centre in the body. Brain is situated in the cranial cavity of the skull in the head region of the body. The bones of cranium or brain box protect this delicate organ from mechanical injury. The brain is contained in a fluid-filled balloon which provides further shock absorption. The study of brain in all aspects is called encephalogy.

Morphology:-

The brain is soft, whitish organ. It weighs 1.2–1.4kg and forms about 98% of the weight of the whole central nervous system. It has about 100 billion neurons (nerve cells). Brain is surrounded by three membranes called meninges which provide protection to it. The space between these three meninges is filled with cerebro-spinal fluid which protects the brain from mechanical shocks. The cell body of the neurons constitutes the grey matter and the fibres constitute the white matter of brain. Both the brain and spinal cord have white matter (bundles of axons having myelin sheaths) and grey matter (masses of the cell bodies and dendrites).

Brain is divisible into three main regions:

1. Forebrain
2. Midbrain, and
3. Hind brain

1. **Forebrain (Prosencephalon):-** It forms the greater part of the brain. It further consists of three regions: olfactory lobes, cerebral hemispheres (cerebrum) and diencephalon.
   i) **Olfactory lobes:** - These are a pair of widely separated club-shaped small structures. These are fully covered by the cerebral hemispheres and are, thus, visible only in the ventral view of the brain. Each olfactory lobe consists of an anterior olfactory bulb and a posterior narrow olfactory stalk. These lobes receive impulses from olfactoreceptors (present in the olfactory epithelium in the nose) and relay sense of smell to the temporal region of the cerebrum.
   ii) **Cerebral hemispheres (cerebrum):- It** forms the largest part of the brain. It is also the most complex and specialized part of the brain. The two cerebral hemispheres lie side by side, being separated from each other by a deep longitudinal cerebral fissure. The surface of these cerebral hemispheres is greatly folded to accommodate large number of nerve cells. The folds are called gyri (singular gyrus) and the depressions between them are termed sulci (singular sulcus). Each cerebral hemisphere is divided by three deep fissures into four lobes: anterior frontal lobe, middle parietal lobe, posterior occipital lobe and lateral temporal lobe. Different areas of cerebrum have different functions. For instance, it has sensory areas which receive impulses from the sense organs or sensory receptors, e.g. eyes, ears, tongue, nose and skin. Similarly, cerebrum also has motor areas which send instructions in the form of impulses to various effectors of the body (e.g. muscles). The latter then respond to stimuli. There are specific regions in cerebrum for each kind of stimulus and its response. For instance-
      - Frontal lobe is the region of speech, facial muscular activities as well as higher mental activities.
      - Temporal lobe is the region for auditory reception (hearing).
      - Occipital lobe is the region for visual reception (sight).
      - Parietal lobe is the region for touch, taste, smell, temperature and conscious association.

        Each lobe also has some areas called association areas which store information and experiences. These association areas control thinking, memory, learning and emotions. Internally, each cerebral hemisphere possesses a fluid-filled cavity called lateral ventricle.
   iii) **Diencephalon:-** It lies on the inferior side of the cerebrum and thus is visible in the ventral view of the brain. Its roof is called epithalamus, sides are called thalami and its floor is termed hypothalamus, Diencephalon has a narrow cavity called third ventricle. Hypophysis (pituitary) is attached by a stalk or infundibulum to the hypothalamus region. Hypothalamus has control centres for hunger, thirst, fatigue, sleep, body temperature, sweating and emotions. It secretes neurohormones which regulate the secretions of pituitary.
2. **Mid brain (Mesencephalon):-** It is significantly small region. It consists of two fibre tracts called crura cerebri and two swellings called superior and inferior colliculi on each side. The fibrous tracts, i.e., crura cerebri connect hind brain with the fore brain. The four swellings of both sides are together known as corpora quadrigemina. The

two superior colliculi have centres for sight reflexes while the two inferior colliculi have centres for auditory reflexes.

The mid brain controls reflex movements of:

i) The head, neck and trunk in response to visual and auditory stimuli, and

ii) The eye muscles; changes in pupil size as well as shape of the eye lens.

3. **Hind brain (Rhombencephalon):-** The hind brain consists of three parts:- cerebellum, pons varolii and medulla oblongata. The cerebellum is the second largest part of the brain, constituting nearly 12.5% of it. It has two large, lateral cerebellar hemispheres and a central vermis. Cerebellum maintains the posture, equilibrium and muscle tone. Pons varolii controls some aspects of respiration. Medulla oblongata is the posterior most part of the brain which lies below the cerebellum. It continues posteriorly into the spinal cord. It contains a fluid-filled cavity called fourth ventricle. Medulla oblongata controls (i) rate of heart beat, (ii) breathing movements, (iii) expansion and contraction of blood vessels to regulate blood pressure, and (iv) swallowing, coughing, sneezing and vomiting.

Twelve pairs of cranial nerves arise from the brain.

Functions of brain:

i) It receives information by carrying impulses from all the sensory organs of the body.

ii) It response to the impulses brought in by sensory organs by sending its own instructions to the muscles and glands causing them to function accordingly.

iii) It correlates the various stimuli from different sense organs and produces the most appropriate and intelligent response.

iv) It coordinates the bodily activites so that the mechanisms and chemical reactions of the body work together efficiently.

v) It stores information so that behavior can be modified according to the past experience. This function makes the brain the organ of thought and intelligence.

2. **Spinal Cord:** Spinal cord is a cylindrical structure and is about 45cm long. It begins in continuation with the medulla oblongata of brain and extends downwards upto early part of lumber region. It then extends to the end of vertebral column as fibrous connective called filum terminale. Internally, the spinal cord possesses a narrow, fluid-filled cavity called central canal. Spinal cord is enclosed in the vertebral column or backbone which protects it. Like brain, spinal cord too is surrounded by meninges. Thirty one pairs of spinal nerves arise form the spinal cord. Spinal cord performs two important functions:

i) It conducts sensory and motor impulses to and from the brain.

ii) It acts as a centre for the reflex actions. Thus, it reduces brain's work.

Peripheral Nervous System

It connects CNS with different parts of the body. It has two components, voluntary and involuntary.

Voluntary peripheral nervous system is under the control of will. It consists of nerves that arise directly from CNS connecting different body parts for voluntary (conscious) control of the brain.

Involuntary peripheral nervous system (autonomic nervous system), on the other hand, is not under the control of human will. It develops from branches of some cranial and spinal nerves called visceral nerves.

Peripheral nervous system, thus, consists of all the three types of nerves namely,

i) Cranial nerves ii) Spinal nerves (iii) Visceral nerves

i) **Cranial nerves:-** Cranial nerves arise from the brain and spread to various parts of the head. They are 12 pairs in number. Cranial nerves I, II and VIII are sensory nerves; cranial nerves III, IV, VI, XI and XII are motor nerves; and cranial nerves V,VII, IX and X are mixed nerves (containing both sensory and motor nerve fibres).

ii) **Spinal nerves**:- Thirty one pairs of spinal nerves arise from the spnal cord along most of its length and spread throughout the body (except head region). They are all mixed nerves as they carry both sensory and motor nerve fibres.

iii) **Visceral nerves:-** Apart from regulating normal functions of the body, many activities of the internal organs such as heart, kidney, lungs , urinary bladder, blood vessels, glands etc. are controlled by specific set of nerves called visceral nerves which mostly arise from spinal cord but a few from the brain also. These form the autonomic nervous system.

Autonomic Nervous System:

It is the system which operates automatically or involuntary. It includes of those responses against stimuli which are not under the control of animal. Visceral nerves of autonomic nervous system control the activities of internal organs. So it is also termed as visceral nervous system.

Autonomic nervous system is subdivided into two parts:

i) Sympathetic nervous system ii) Parasympathetic nervous system

Protective coverings:

Both brain and spinal cord are protected from mechanic injury and shock by bony cases around them. Brain is protected by cranium (brain box) while spinal cord is protected by vertebral column. There are also present additional protective coverings called meninges between the brian or spinal cord and their respective bony cases. These meninges are three in number namely duramater, piamater and arachnoid. The space between the meninges is filled by a fluid called cerebrospinal fluid

Cerebrospinal fluid:-

it is a clear , colourless slightly alkaline fluid present in the ventricles of the brain, spinal cord and spaces between meninges. It protects the CNS from shocks and keeps its moist. It also carries wastes, drugs and other harmful substances from brain to the blood. It also maintains a constant pressure inside the cranium inspite of variations in the pressure of blood in the cranial vessels.

Chemical Coordination In Animals

In animals, the message, communicated in the form of nerve impulses, from receptors (sensory neurons) to central nervous system and from latter to the effectors (muscles and glands) is very quick. The nervous coordination in animals, however, has certain limitations. For instance,

- Nerve impulses can reach to only those animal cells which are connected by nervous tissue, and
- Such cells, after generation and transmission of nerve impulses, take some time to reset their mechanisms before a new impulse is generated and transmitted.

Hormones

The word hormone was introduced by William M. Bayles and Earniest N. Starling. It has been derived from the Greek work harmein which means to excite because it is responsible for excitement or disturbance in our body. These are secreted by special cells called endocrine cells. Hormones, therefore, are chemical substances secreted in trace amounts by endocrine glands and are means of information transmission.

Transport And Recognition Of Hormones

The cells of endocrine glands secrete chemical substances. When they receives stimulus they pour these secretions in blood which then goes to each and every organ but only target organ shows response because in target organ special sites called receptors are present and a particular hormone gets binded with it and the message present in hormones gets transmitted to receptor. The shape of receptor gets changed because it receives new information due to which new responses get produced.

Difference between nervous and hormonal information

	Nervous information	**Hormonal information**
1	It is sent as an electrical impulse along axons, and as a chemical across synapse.	It is sent as a chemical messenger via blood stream.
2	Information travels rapidly, in milliseconds.	Information travels slowly.
3	Information is directed to specific receptors-one of a few nerve fibres, gland cells or other neurons, i.e., it is addressed by name.	Information is spread throughout the body by blood from which the target cells or organs pick it up, i.e., it is addressed to 'whom it may concern'.
4	It gets response immediately.	It gets response usually slowly.
5	Its effects are short-lived.	Its effects are generally more prolonged.

Characteristics of hormones

The hormones in animals show following characteristic features:

i) They are synthesized by endocrine glands.

ii) They are produced at a place other than the site of action. They travel through blood to other parts where they cause changes.

iii) They are secreted directly into the blood stream.

iv) They act on specific tissues or organs. The tissues or organs that respond to the hormones are called as target organs.

v) They are secreted in response to changes in the external or the internal environment of the body and are also called as chemical messengers.

vi) They may stimulate or inhibit the activity of the target organ, thus regulating its activity.

vii) They are effective in minute quantities, often in trace amounts difficult to detect at times.

viii) Excess or deficiency of a hormone may lead to serious consequences.

Glands and its types:

Gland: It can be the cell or tissue or organ which secretes certain useful substances for the proper functioning of body.

There are three types of glands in animals.

i) **Exocrine glands:-** These are those glands which directly pour the secretions into the duct and these ducts carry them to target organs. These are also called duct glands for example salivary glands, gastric glands, etc.

ii) **Endocrine glands:-** It has been derived from Greek word 'endon' which means within and 'Krinein' which means to secrete. These are those glands which directly pour their secretions into blood and are called ductless glands or are also known as glands of internal secretion. There secretions of endocrine glands are called hormones or internal secretion for example pituitary glands, thyroid glands, parathyroid gland etc.

iii) **Heterocrine glands:-** These glands consist of both exocrine and endocrine glands. A part of Heterocrine gland act as exocrine gland and a part of it acts as endocrine gland. For example pancreas and gonads. A part of pancreas acts as endocrine gland and secretes insulin and glycogen and a part of it acts as exocrine gland and secretes pancreatic juice. Another example is of ovaries in females. Its endocrine part secretes estrogen and progesterone and its exocrine part produces ova. Another example is testes in males. Its endocrine part secretes testosterone and its exocrine part produces sperms.

Human endocrine glands

The major endocrine glands, their secretions, principal functions of the various hormones secreted by them are:-

1. Hypothalamus :- It is situated at the base of the brain and is composed of nervous tissue. The neurosecretary cells of the hypothalamus secrete several neurohormones called Releasing Hormones (RH) and Inhibiting Factors or Hormones (IF or IH). These neurohormones are carried to the pituitary gland to stimulate or inhibit the secretion of anterior pituitary hormones. Hypothalamus also secrets two neurohormones oxytocin and vasopressin (also called antidiuretic hormone or ADH). These are subsequently stored in posterior lobe of pituitary.

2. **Pituitary gland:-** It is small, red, grey in colour and is pea shaped and pea sized. It is located below brain and is attached to hypothalamus by means of stalk called infundibulum. It has three lobes:-

a. **Anterior lobe:-** It produces six hormones.

i) Growth hormone (GH) or Somatotrophic hormone (STH)

Functions:

It controls the overall development or growth of body, muscles, bones and tissues.

ii) Thyroid stimulated hormone (TSH):-

Functions:

It controls the growth and functioning of thyroid gland. It also stimulates the thyroid gland to produce thyroxine.

iii) Adrenocorticotrophic hormone (ACTH)

Functions:

It stimulates the adrenal cortex to secrete its hormones.

iv) Follicle stimulating hormone (FSH)

Functions:

In males, it stimulates the process of spermatogenesis (sperm formation). In females, it stimulates the follicle cells in the ovaries to develop into mature eggs and also stimulates them to produce oestrogen.

v) Luteinising hormone (LH) (FSH and LH are together called gonadotrophins)

Functions:

In males, it stimulates the secretion of male hormone, testosterone (sex hormone in males). In females, it stimulates the secretion of oestrogen and progresterone (sex hormones in females).

vi) Prolactin hormone (PRL)

Functions:

It enhances mammary glands development and milk production in females.

b. Intermediate lobe: It secretes melanocyte stimulating hormone (MSH)

Functions:

It stimulates the synthesis of melanin in the skin.

c. Posterior lobe: It secretes

i) Oxytocin

Functions:

It stimulates contraction of smooth muscles at the time of child birth. It also helps in milk ejection (lactation) from the mammary glands.

ii) Vasopressin or Antidiuretic hormone (ADH)

Functions:

It regulates water and electrolyte balance in body fluids.

3. Pineal gland:- It lies between the two cerebral hemispheres of the brain. It secretes melatonin.

Functions:

It regulates the working of gonads.

4. Thyroid gland

- It is situated in the neck region on the ventral side of the body. It has two lateral lobes, one on either side of the trachea.

a) Thyroxine or T4 and tri iodothyronine or T3.

Functions:

T3 and T4 stimulates the rate of cellular oxidation and metabolism.

b) Calcitonin:-

Functions:

Calcitonin lowers calcium level when by suppressing release of calcium ions from the bones, calcium level is high in blood.

5. Parathyroid gland:

- These are four small oval bodies which lie embedded in the lobes of the thyroid gland. It secretes parathyroid hormone (PTH) or parathormone.

Functions:

It regulates calcium and phosphate levels in the blood. When blood calcium level is below normal, it mobilizes the release of calcium into the blood from bones. It has an action opposite to that of calcitonin on calcium metabolism.

6. Thymus gland:

- It is situated in the upper chest near the frond side of heart.. It secretes thymosin.

Function:

It stimulates the development and differentiation of lymphocytes.

7. **Adrenal gland:-** In human being, a pair of adrenal glands are present, one on top of each kidney, so are also called as suprarenals . Each adrenal gland has an outer part called the cortex and an inner part medulla.

i) Adrenal cortex: It secretes three groups of hormones.

- Glucocorticoids:- It regulates the metabolism of proteins, fats and carbohydrates in the body and the level of blood sugar. It regulates heart beat and blood pressure.
- Mineralocorticoids (Aldosterone):- It regulates water and mineral balance in the body.
- Sex corticoids:- It stimulates the development of secondary sexual characters both in males and females.

ii) Adernal Medulla :- It secretes two hormones.

- Adrenaline (Epinephrine) and Non-adrenaline (Non-epinephrine)

Functions:

Both these hormones together control emotions , fear, anger, blood pressure , heart beat, respiration and relaxation of smooth muscles.

8. **Pancreas:** It is a heterocrine gland and is located in the abdominal region. Its endocrine part is islets of langerhans which secretes two hormones.

- Insulin:- It regulates the conversion of glucose to glycogen i.e. it lowers blood glucose level.

- Glucagon:- It regulates the conversion of glycogen back to glucose i.e. it increases blood glucose level.

9. **Ovaries:-** These are the pair of organs present in lower abdominal region in females. It secretes two hormones:-
   - **Progesterone and estrogen:** - These play an important role in ovulation. These help in the preparation of uterus for the reception of fertilized ovum.
     These hormones also help in the maintenance of pregnancy.
     Oesotrogens are responsible for development of secondary sexual characteristics in females like mammary gland, voice, hair pattern, etc.

10. **Testes:** These are extra abdominal in position. The interstitial or Leydig cells present in testes produce male hormone. It secretes one hormone.

Testosterone:- It regulates the growth, development and functioning of accessory sex organs and controls the secondary sexual characteristics in males.

Disorders of endocrine gland

Disorders of pituitary

i) Dwarfism: Dwarfism is caused due to deficiency of growth hormone from early age.

ii) Gigantism:- It is giant size of the youngs with very tall skeleton and proportionally large muscles and viscera. It is caused due to excess secretion of growth hormone from childhood.

iii) Acromegaly: It is caused due to excess secretion of growth hormone after adolescence. Acromegaly in adults leads to overgrowth of the jaw bones and bowing of the spine (backbone)

iv) Diabetes insipidus: Deficiency of ADH reduces reabsorption of water and increases urine
output, causing excessive thirst. This disorder is called diabetes insipidus. No glucose is lost in the urine of such a patient.

Improper secretion of thyroid hormones

i) Grave's disease (exophthalmic goiter): It is caused by hypersecretion (oversecretion) of thyroid hormones due to enlargement of thyroid gland. Excess of thyroid hormones increases metabolic rate and accelerates oxidation. This results in quick consumption of food, leaving nothing for storage and causing emaciation (excessive leanness).

ii) **Simple goiter (iodine deficiency goiter or endemic goiter**): It is the enlargement of thyroid gland accompanied with cretinism or myxoedema. Its caused due to dietry deficiency of iodine. This disease is common in hilly areas. It causes enlargement of thyroid gland. Swollen neck is one of the symptoms of this disorder. Addition of iodides to the table salt prevents the disorder. In our country, common salt is iodized to provide required iodine to the thyroid gland.

iii) **Myxoedema:-** It is caused by deficiency of thyroid hormones in adults. It is more common in women than in men.

iv) **Cretinism:-** Hypothyroidism (Hypo activity of thyroid gland) causes cretinism in young children. Its symptoms are stunted growth, short club-like fingers , deformed bones and teeth. Skin is rough, dry and wrinkled with scanty hair growth. Pot –bellied abdomen. Idiocy of varying degree is observed.

Deficiency of insulin:

Diabetes mellitus: Deficiency of insulin hormone in the body causing a disease known as diabetes mellitus. In this disease, the patient excretes sugar (glucose) in urine, feels excessive thirst and also does excessive urination.

Q How are involuntary action and reflex action different from each other?

Ans. Involuntary action:

i) Involuntary action involves autonomic nervous system.
ii) They occur in response to internal stimuli.
iii) They are connected with functioning of internal body parts.
iv) It occurs without the will of the organism. For example, heart beat, breathing, etc.
v) These are regulated by medulla oblongata (hind brain).

Reflex action

i) Reflex action involves all parts of voluntary nervous system though they are not voluntary.
ii) They operate against harmful stimuli which are generally external.
iii) Some reflexes involve the brain, rather than the spinal cord.
iv) Reflex is generally controlled by spinal cord.
v) They are connected with emergency i.e. response to stimuli.

Textual Questions

Q#1 What is the difference between a reflex action and walking?

Ans. Reflex action is a immediate response of the spinal cord to a sudden impulse. It is conducted by the spinal cord. But walking is a voluntary action which is controlled by cerebellum part of hind brain.

Q#2 What happens at the synapse between two neurons?

Ans. Synapse is the gap between the nerve endings of one neuron and dendrites of another neuron. At synapse, the electrical impulse generated at dendrites of a neuron is passed on the dendrite of another neuron in the form of chemicals by axon ending of the first neuron. Synapse also ensures that nerve impulse travels only in one direction.

Q#3 Which part of the brain maintains the posture and equilibrium of the body?

Ans. Cerebellum part of the hind brain maintain the posture and equilibrium of the body.

Q#4 How do we detect the smell of an agarbatti (incense stick)?

Ans. Smell of an incense stick is detected by the olfactory receptors located in the forebrain.

Q#5 What is the role of the brain in reflex action?

Ans. Reflex actions generally involve spinal cord for quick response to specific stimulus. However, the information input also goes on to reach the brain where thinking process occurs.

Q#6 What are plant hormones?

Ans. Refer to note on plant hormones.

Q#7 How is the movement of leaves of a sensitive plant different from the movement of the shoot towards light?

Ans. The movement of leaves of a sensitive plant is neither towards nor away from stimulus like touch. While movement of shoot is towards stimulus like light. The movement of leaves of sensitive plant is non directional while the movement of shoot is directional.

Q#8 Give an example of a plant hormone that promotes growth.

Ans. Auxin is the plant hormone that helps in cell elongation and growth.

Q#9 How do auxins promote the growth of a tendril around a support?

Ans. The movement of tendril around the support is caused by the auxins hormones. Less auxins occurs on the side of contact as compared to the free side. As a result, auxins promotes the growth on the free side and the tendril coils around the support.

Q#10 Design an experiment to demonstrate hydrotropism.

Ans. Experiment to Demonstrate Hydrotropism:

1) Take a wire mesh and cover it with moist saw dust.
2) Place some germinated seedling (pea or gram) on the moist saw dust.
3) Keep the saw dust moist by sprinkling water at regular intervals. Observe after 2-3 days.
4) As the radicals come out of seeds, they are seen to move towards the perforation. After some growth they bend back and enter the perforations to reach the moist saw dust in complete disregard of gravity (positive hydrotropism).

Q#11 How does chemical coordination take place in animals?

Ans. In animals chemical coordination is achieved through the agency of hormones which function as chemical messengers or informational molecules. Hormones are secreted in a very small amount by specialized tissues in the body called endocrine glands. In fact endocrine glands are often called ductless glands, because hormones are secreted directly into the blood without the involvement of any special duct. Hormones coordinate the activities of living organisms and also their growth. They affect only particular tissues called target tissues. These organs and tissues then responses and enabled the body to deal with different situations. For example, pancreas secretes two hormones, insulin and glucagon. The function of insulin hormone is to lower the blood glucose. Deficiency of insulin hormones in the body causes a disease known as diabetes. The function of glucagons hormone is to increase the blood glucose.

Q#12 Why is the use of iodised salt advised?

Ans. Iodine is essential for the synthesis of thyroxine hormone in the thyroid gland. Thyroxin regulates carbohydrates, protein and fat metabolism in the body so as to provide the best balance for growth.
In case of deficiency of iodine in our diet, there is a possibility that we suffer from goitre. Iodised salt contains proper content of iodine. Thus, to avoid deficiency of iodine, iodised salt is recommended.

Q#13 How does our body respond when adrenaline is secreted into the blood?

Ans. Adrenaline hormone is secreted in small amounts all the time, but in large amounts when a person is frightened or mentally disturbed. When adrenaline is secreted in large amounts it prepares our body for action. It increases the rate of heartbeat and breathing, raises blood pressure and allows more glucose to go into the blood to give us a lot of energy quickly to fight or runaway from the frightening situation or to deal with the emergency situations.

Q#14 Why are some patients of diabetes treated by giving infections of insulin?

Ans. Diabetes (Diabetes mellitus) is caused due to less or no secretion of hormone insulin by pancreas. In such a person, blood sugar level is high. Insulin converts extra sugar present in blood into glycogen. Thus, patients suffering from diabetes (Diabetes mellitus) are given insulin infections to control their blood sugar level.

Q#15 What is the function of receptors in our body? Think of situations where receptors do not work properly. What problems are likely to arise?

Ans. The receptors in our body collect information about changes in the environment around us in the form of stimuli, e.g., photoreceptors, gustoreceptors, thermoreceptors, statoreceptors, tangroreceptors. These

then pass the information in the form of nerve impulse to the central nervous system (spinal cord and / or brain) where the message is interpreted and appropriate instructions are sent to effectors (glands or muscles) which reveals responses. When receptors do not function normally, the environmental stimuli are not able to create nerve impulses and the body does not respond.

Q#16 Draw the structure of neuron and explain its function.

Ans. Refer to notes.

Q#17 How does phototropism occur in plants?

Ans. Photo tropism is a directional growth movement which occurs in response to unidirectional exposure to light. Phototropic movement is generally caused by increased ausin concentration on the dark side and less auxin concentration on the illuminated side. Due to the presence of more auxin, the part of the plant in the dark grows faster,causing it to bend towards the source of light.

Q#18 Which signals will get disrupted in case of spinal cord injury?

Ans. In case of spinal injury, reflex actions and involuntary actions will get disrupted.

Q#19 How does chemical coordination occur in plants?

Ans. In plants, chemical coordination occurs with the help of plant hormones (phytohormones). Amount of hormones depends upon the environment and other stimuli. Different plant hormones help to coordinate growth, development and responses to the environment. They are synthesized at places away from where they act and simply diffuse to the area of action, for example, auxin which promotes cell differentiation. Another example of plant hormones are gibberellins which help in the growth of the stem. Cytokinins promote cell division. Abscisic acid is a plant hormone which inhibits growth and its effects include wilting of leaves.

Q#20 What is the need for a system of control and coordination in an organism?

Ans. The body of a multicellular organism consists of a number of components and sub-components and each specialized to perform a particular function. Therefore, it is necessary that various organs of the body of an organism work together in a proper manner to produce proper response to a stimulus. In human being, nervous system and endocrine system work together for control and coordination.

Q#21 How are involuntary action and reflex action different from each other?

Ans.

Sr.No.	Involuntary Action	Reflex Action
1.	They involve autonomic nervous system.	They involve all parts of voluntary nervous system though they are not voluntary.
2.	They occur in response to internal stimuli.	They operate against harmful stimuli which are generally external.
3.	They are connected with functioning of the internal body parts.	They are connected with emergency.
4.	Involuntary actions occur without the will of the animal. For example, heartbeat, breathing, etc.	Some reflexes involve the brain, rather than the spinal cord.
5.	These are regulated by medulla for hind brain.	Reflex actions are generally controlled by spinal cord.

Q#22 Compare and contrast nervous and hormonal mechanism for control and coordination in animals.

Ans. Refer to notes.

Q#23 What is the difference between the manner in which movement takes place in a sensitive plant and the movement in our legs?

Ans. The differences between movement in a sensitive plant and the movement in our legs are:

Movement in a sensitive plant	Movement in legs
1. It occurs in response to an external stimulus like touch, pressure or shock. 2. It is brought about by turgor changes in specific cells. 3. It is controlled by plant hormones.	1. It occurs voluntarily in response to our need and will. 2. It is brought about by contraction and relaxation of muscles. 3. It is controlled by cerebellum of the hind brain.

Q#24 Multiple Choice Questions:

i) Which of the following is a plant hormone?

a) Insulin b) thyroxine
c) oestrogen d) cytokinin

Ans. Cytokinin.

ii) The gap between two neurons is called a

a) dendrites b) synapse
c) axon d) impulse

Ans. Synapse

iii) The brain is responsible for

a) Thinking b) regulating the heart beat
c) Balancing the body d) all of these

Ans. All of these

Q#25 Which hormone is released into the blood when its sugar level rises? Name the organ which produces the hormone and its effect on blood sugar level. Also name one digestive enzyme that this organ secretes and the function of this enzyme.

Ans. Insulin hormone is released into the blood when its sugar level rises. Pancreas secretes the insulin hormone. The function of insulin hormone is to lower the blood sugar level. Deficiency of insulin hormone in the body causes a disease known as diabetes. Diabetes is characterized by large quantities of sugar in the blood. The insulin hormone controls the metabolism of sugar. If due to some reason, pancreas does not produce and secrete sufficient amount of insulin into blood, then the sugar level in the blood rises. The high sugar level in the blood can cause many harmful effects to the body of person. The people having severe diabetes are treated by giving injection of insulin.

The pancreas secretes pancreatic juice which contains enzymes like trypsin for digesting proteins, lipase for breakdown of emulsified fats and amylase for breakdown of starch.

Electric charge: Matter is composed of atoms. Electric charge, just like mass, is a fundamental property of a matter. Electric charge is the property of matter due to which it experiences a force when placed in an electric field. It is usually represented as Q or q. It's S. I unit is coulomb which is equivalent to the charge contained in nearly 6×10^{18}electrons. It is named after scientist Charles Augustin de Coulomb. Each electron carries the same charge of approximately 1.6×10^{-19}C.

Electric charges are of two types: a) Positive charge b) Negative charge.

Positive Charge:

- The deficiency of electrons on a body or particle is known as positive charge.
- The mass of a body somewhat decreases when a positive charge is given to it.
- A glass rod gets positively charged on rubbing it with silk.

Negative Charge:

- The excess of electrons on a body or a particle is known as negative charge.
- When a negative charge is given to a body then its mass somewhat increases
- When an ebonite rod is rubbed with fur, it gets negatively charged.

Properties of Charges:

- Charges are of two types; positive and negative
- Like charges repel and unlike charges attract each other.
- The total charge of an isolated physical system is always conserved.
- Charge is a scalar quantity.
- Charges are additive in nature.
- The exchange of charge, in any physical process, can be integral multiples of electron charge and not its fraction. If Q is the net charge due to accumulation of electrons or removal of electrons, then Q= ne where n is an integer and e = magnitude of charge on electron quails to 1.6×10^{-19} C.
- The force of attraction or repulsion between the charges at rest is given by coulomb's law

$$F = Kq_1q_2 / r^2$$

Where $K=9\times10^9$ Nm^2/C^2, q_1 and q_2 are charges and r is the distance between the centers .Faraday is a bigger unit of charge and 1 faraday= 96500 C

Unit of charge: The S. I. unit of charge is coulomb. An electron is a very small atomic particle carrying a unit negative charge. So coulomb is taken as the standard unit of charge

$$1C = 6.25 \times 10^{-18} \text{electrons.}$$

One coulomb: A body is said to have 1 coulomb of charge if it has an excess or deficit of 6.25×10^{18} electrons.

Other units are 1 milli coulomb= 1mC = 10^{-3} C

1 microcoulomb = 1μC = 10^{-6} C

Charge on one electron:

6.25×10^{18} electrons have a charge = 1 coulomb

1 electron has a charge = $1/ 6.25 \times 10^{18}$ C = 0.16×10^{-18}C

Charge on one electron is 1.6×10^{-19} C.

Ways of charging a body: There are three ways of charging a body: a) Rubbing b) Conduction c) Induction

a) **Rubbing:** When two uncharged bodies are rubbed against each other, they get charged due to transference of electrons. One body becomes positively charged and other becomes negatively charged depending on their nature.

b) **Conduction**: In this method an uncharged body is placed in contact with a charged body. As a result the uncharged body develops the same charge as that of the charged body.

c) **Induction:** In this method, an uncharged body is placed in the vicinity of charged body. Due to presence of charges on the charged body, the uncharged body develops charges. The uncharged body in this case develops opposite charge with respect to the charged body.

Electricity: to be checked.

Electrostatics: The branch of physics in which we study charges at rest is known as electrostatics,it is defined as the branch of physics in which mutual interactions among the stationary charges are studied is known as electrostatics.

Electrodynamics: The branch of physics in which the charges in motion are studied is known as electrodynamics.

Coulomb's law: In 1777, Coulomb made experiments and established a law in connection with the force of attraction or repulsion between the point charges. It states that the force between the charges is directly proportional to the product of the charges and inversely proportional to the square of the distance between them.

If q_1 and q_2 are the chargeson the two bodies and r is the distance between them, then according to Coulomb's law we have

$F \propto q_1 q_2$ …… (1)

$F \propto 1/r^2$ ……(2)

On combining eq, (1) and (2) we get

$F \propto q_1 q_2 / r^2$

$F = K\, q_1 q_2 / r^2$

Where K is constant of proportionality whose value depends upon the medium between the charges.

In S. I unit charge is measured in coulomb.

If $q_1 = q_2 = 1C$ and r =I m, then

$F = K$

$K = 9 \times 10^9\ Nm^2/C^2$

$F = 9 \times 10^9 \times I\ C \times 1C/1m \times 1m$

$F = 9 \times 10^9 N$

Hence 1 coulomb is that charge which when placed at a distance of 1m from an equal similar charge in vacuum or air repels it with a force of 9×10^9N.

Coulomb's law is true for point charges but it holds for every very large distances to very small distances such as atomic distances ($\sim 10^{-11}$ m)and nuclear distances (10^{-15} m)

Electrical forces are much stronger compared to the gravitational forces. E.g. electrical force between two protons is 10^{36} times the gravitational force between them.

Electric Current: The flow of charges through a conductor is called the electric current. In other words , it is the rate of flow of electric charges. It is denoted by I.

I = Electric charge (Q)/ time (t)

I = Q/t

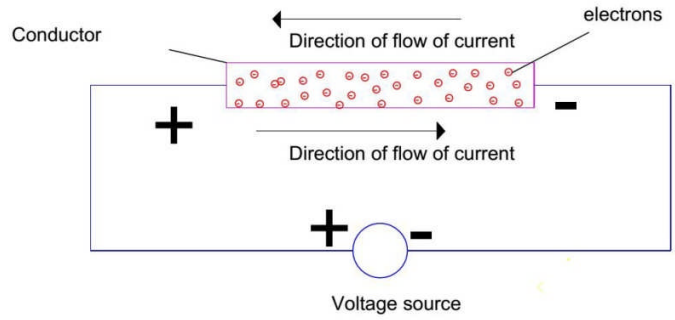
Unit of electric current: The unit of electric current is ampere(A). Current through a point is one ampere, if one coulomb charge flows through that point in one second i. e,

1Ampere A= 1 coulomb (C) / 1 second (s)

Smaller units are milliampere (mA) $= 10^{-3}$A , micrometer (μA) $= 10^{-6}$A. Current is a scalar quantity. It is not a vector quantity because it doesn't satisfy vector laws.

Direction : The conventional direction of flow of electric current is the direction of flow of a positive charge. Consider two metallic spheres A and B as shown in the fig. Now let us create the potential difference between them by charging the sphere A with positive charge and sphere B with equal negative charge and connect the

two spheres with a metal rod. The direction of flow of electrons is determined by a quantity called the potential of the conductor. The conductor having excess of electrons is said to be at a lower potential and that having deficiency of electrons is said to be at higher potential. Since B has excess of electrons and A has deficiency of electrons, the charge will flow from B to A, till B loses all its extra electrons or A gains the required number of electrons to make up the deficiency of electrons , This flow will continue till their electric potentials become equal. Keeping the convention of flow from A to B i.e. in the direction opposite to the direction of flow of electrons which actually constitutes the electric current.



Electrical Potential: When a small positive test charge $+q_0$ are placed in the electric field due to another charge +q, then it will experience an electric repulsive force F due to +q. So work has to be done on the positive test charge $+q_0$ to move it against this force of repulsion.

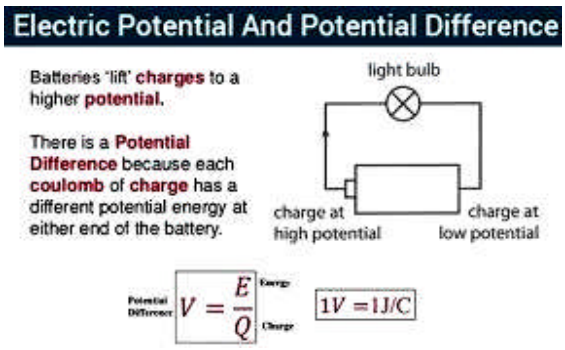
The electrostatic potential or potential at a point (say A) in an electric field is the ratio of the work done in bringing a test charge $+q_0$ from infinity to that point

Potential at A = V_A= w/ q_o

Unit of Potential: Potential is denoted by the symbol V and its unit is volt the electrostatic potential at any point is said to be 1 volt, if 1 joule of work is done in bringing a test charge of 1 C from infinity to that point in an electric field.

Thus 1 volt= 1 joule/ 1 coulomb

It is a scalar quantity and is measured in volts and is measured by voltmeter which is connected in parallels across the points where the p.d is to be measured.


Electric Potential And Potential Difference
Batteries 'lift' charges to a higher potential.
There is a Potential Difference because each coulomb of charge has a different potential energy at either end of the battery.
light bulb
charge at high potential
charge at low potential
Potential Difference
$V = \frac{E}{Q}$
Energy
Charge
$1V = 1J/C$

Potential Difference: When a small positive test charge $+q_0$ is placed in an electric field due to +q, then it will experience an electric repulsive force F due to +q. So work has to be done on the positive test charge $+q_o$ to move it from B to a distance against the force of repulsion

The ratio of the work done in taking a test charge $+q_o$ from one point to another point in an electric field is called potential difference between those points.
If W be the work done in taking charge $+q_0$ from B to A, then potential difference between A and B is given by

$$V_A - V_{B=W}/q_0$$

Potential difference is a scalar quantity.

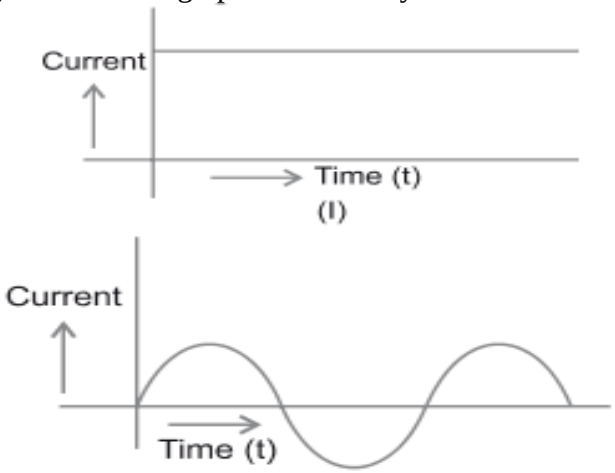
Unit of potential difference: The S. I. Unit of work is joule (J) and that of charge is coulomb (c) So. If W=1 joule and q = 1C, then the S. I unit of potential difference (v)=1 joule/1 coulomb.

$$1\ V=1J/1\ C=1\ JC^{-1}$$

The unit JC^{-1} is called volt (V), named after Alessandro Volta, an Italian physicists. Thus, the S. I unit of p.d is volt.One volt is the potential difference between two points in a current carrying conductor when 1 joule of work is done to move a charge of 1 coulomb from one point to the other.
Other units
Smaller units_ 1 milli volt(mV) = 10^{-3}V
Bigger units _ 1 kilo volt (kV) = 10^{3} V
1 Megavolt (MV)=10^{6}V
It is measured by a high resistance electrical device, called voltmeter. For the purpose, it is connected in parallel with the resistance.

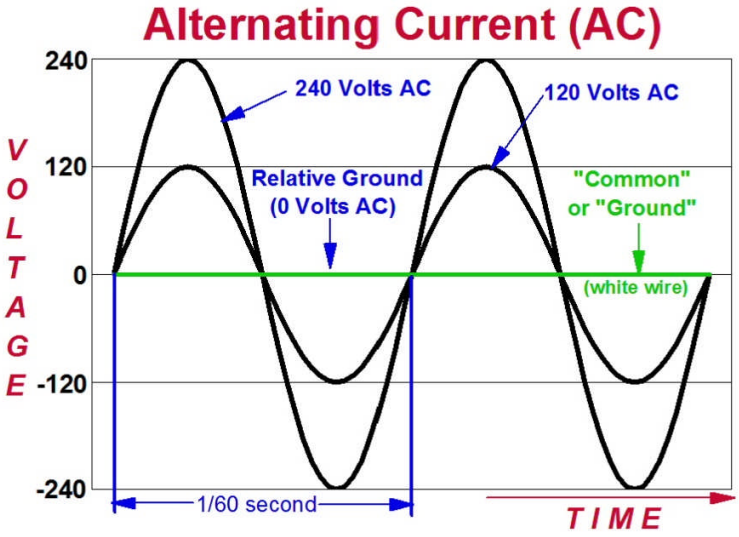
Types of current:

1) **Steady current:** The current whose magnitude does not change with time is called steady current. A current from a cell or a battery is steady current. The graph of the steady current is shown below:



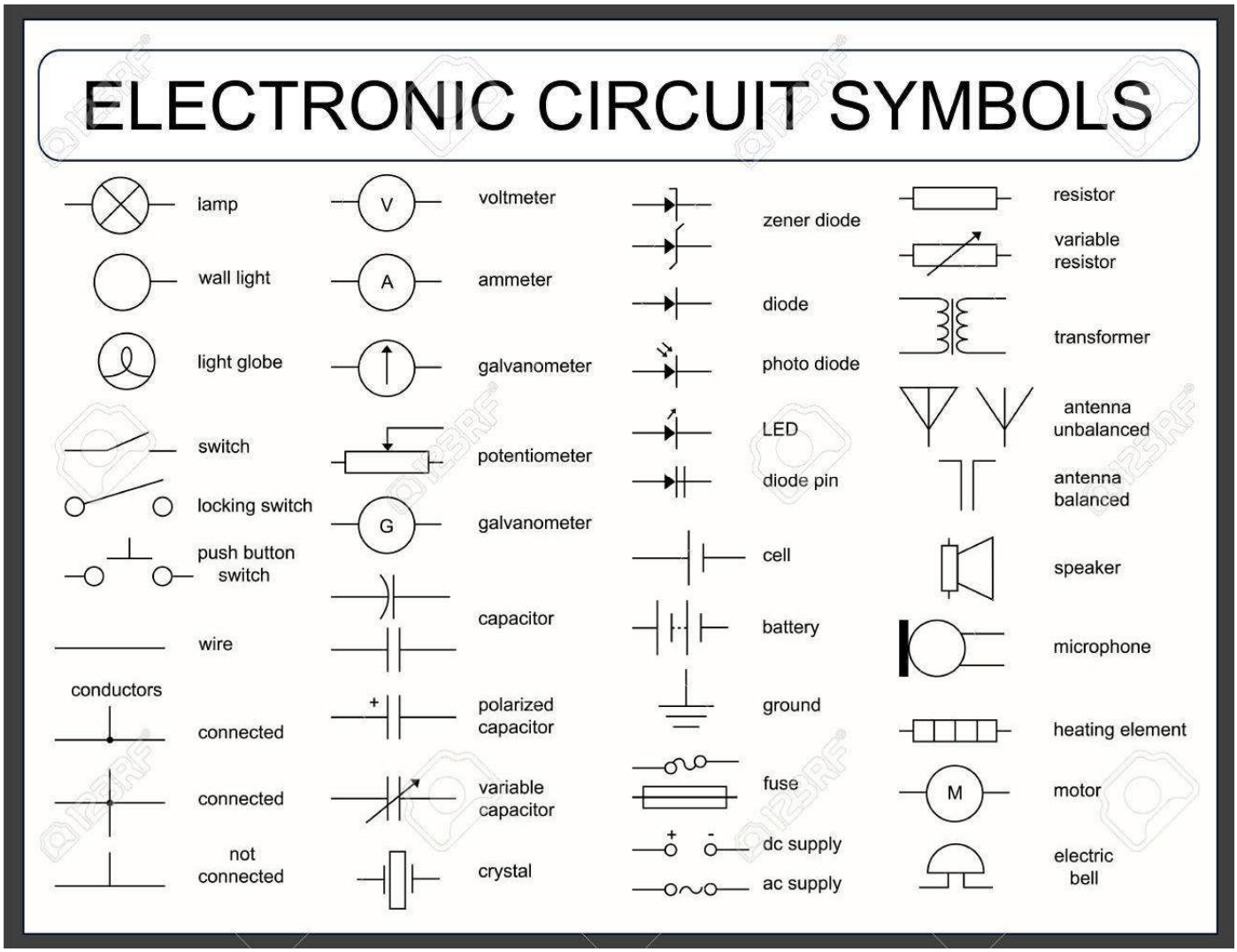
2) **Varying Current:** The current whose magnitude changes with time but not direction is called varying current.
E.g. current obtained from D. C dynamo the curve shows the varying current.

3) **Alternating Current**: The current whose magnitude changes continuously with time and direction periodically is called alternating current e.g. current obtained from A.C dynamo. This is represented by the graph below.



Flow of current in a metallic conductor: In a metallic conductor, the electrons of a valence shell (of the order 10^{23} in 1 mole) of the atoms get easily removed and hence a sea of mobile electron are formed in the metal. These electrons move with a high speed of 10^6 m/s even at room temperature but the electrons move in an irregular fashion or zig zag paths like the molecules of the gas contained in a container and hence the average velocity of the electrons is zero i. e. no current flows in the conductor. However, if the metallic conductor be now placed across a potential source (cell or battery) then all the electrons of the conductor get drifted towards the positive end of the conductor and thus constitutes the electric current in the wire.

Electric Circuit: It is the continuous and closed conducting path through which electric current flows. Various symbols are used to represent the components of the circuit. An electric circuit consists of electric source, electrical components, a plug or key, and connecting wires which are connected between the terminal of cell .



Ammeter: It is a device used to measure current. It has very low resistance as it has to measure current. It is always connected in series as if it is connected in parallel, the resultant resistance of the circuit decreases and consequently large current will pass through the circuit, which can damage the ammeter.

Voltmeter: It is a device used to measure voltage or potential difference. It has high resistance as it has to measure potential difference. It is always connected in parallel. If a voltmeter is connected in series, the resistance of circuit becomes very high. Thus there is considerable fall of current through the circuit. The voltmeter will not give a required reading of the potential difference across the circuit.

Ohm's Law: In 1826, German scientist George Simon Ohm expressed the relation between the current and the potential difference flowing through the conductor, which is called ohm's law. According to this law, " if there is no change in the physical state of a conductor such as temperature, mechanical strain etc. then the current (I) flowing through a conductor is directly proportional to the potential difference across its ends i.e. mathematically

$I \propto V$ or $V \propto I$ or $V=IR$ or $V/I = R$ = constant , where R is constant of proportionality and is called resistance of the conductor.

Experimental Verification of Ohm's law: To verify Ohms law, an electrical circuit is maintained as shown in the diagram. In this circuit a battery B, a key K, an ammeter A and a rheostat are connected in series. A voltmeter V is connected in parallel across the ends of the resistor,

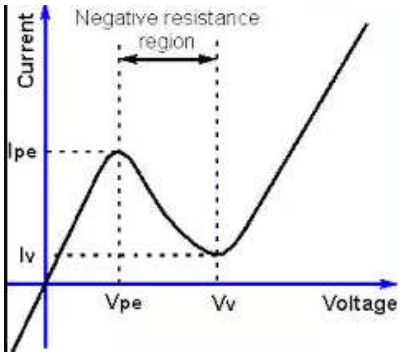
When the key is closed, the current flows in the circuit as shown by the ammeter, the potential difference is measured by the voltmeter. Let it be V volt. Similarly note down the value of current in ammeter. Let it be I amperes. If R ohms is the value of resistance of the resistor then R= V/I Ohms. Go on changing the value of the current by sliding rheostat, and the corresponding values of the p.d are recorded. Each time find the value of R, it is found to be constant, and this verifies ohms law.

Conclusions from Ohm's Law:

Various conclusions can be drawn from this law

- From Ohms law V= IR, I=V/R
  This implies $I \propto V$ i.e. current increases with increase in voltage and vice versa.
- We have I= V /R, if V is kept fixed, then I is inversely related to R i.e. more resistance, less current and vice versa.
- R =V/I. This implies the ratio between voltage and current through a circuit is constant , which is the resistance of the material through which current is flowing.
  The devices which obey ohm's law i.e. the devices in which p.d. is directly proportional to current are called ohmic devices or ohmic circuits. A circuit containing a resistor is an ohmic circuit.
  The devices which do not obey Ohms law i.e. in which the p.d. is not proportional to current are called non ohmic devices.e.g. Rectifiers are non ohmic devices.

Failure of Ohm's Law:



1) If the temperature of the conductor is increased, the positive ions present in it start vibrating and cause more opposition to the flow of current through the conductor. As a result the graph between current and voltage of conductors at higher temperatures become nonlinear which is a failure of Ohms law.

2) Certain devices like diodes (semiconductor devices) have a nonlinear graph between current and voltage, which is a failure of Ohm's law.

Resistance: The opposition offered by a material to the flow of current through it is called resistance .
From Ohm's law, we have

$$R=V/I$$

I.e. resistance is calculated by taking the ratio of the potential difference to the current across the material.
Unit of resistance: we have R= V/I

R= 1 volt/ I ampere=1 ohm.

The S. I. unit of resistance is ohm represented by Ω (omega). Resistance of a material is said to be 1 (Ω) when 1 ampere of current flows through it under a potential difference of 1 volt.
Cause of Resistance: The flow of current through any material is due to the drift of electrons towards the positive potential. However the electrons collide with the positive ions and the electrons while drifting towards the positive potential. These collisions are the cause of resistance.

Factors on which resistance depends:

1) **Length of the conductor:** The resistance of a conductor is directly proportional to its length
   I.e. $R \propto L$ ----------(1)
   Where L is the length of the conductor.

2) **Cross Sectional area of the conductor:** Area of the conductor perpendicular to the flow of current is called cross sectional area. Resistance is inversely proportional to the cross sectional area
   I.e. $R \propto 1/a$----------(2)
   Where A is cross sectional area
   Combining (1), (2) we get

$R \propto L/A$

$R = \rho L/A$. where ρ is the resistivity of the conductor.

3) **Nature of the material of the conductor**: Resistance of copper, silver, aluminum have very small resistance while as lead, platinum, nichrome, tungsten etc offer larger resistance.
4) **Temperature of the conductor**: In metallic conductor, resistance increases with increase in temperature. Certain alloys like nichrome show least variation in resistance with increase in temperature and hence can be used as standard resistors in appliances like toasters etc.

Resistivity: We have

$R = \rho \ L/A$

$\rho = RL/A$

If $A = I\ m^2$ and $L = 1m$ then $\rho = R$

Thus, resistivity is the resistance of a conductor whose cross sectional area is $1m^2$ and whose L= 1 m.

Units of resistivity:

$\rho = RA/L$

$\rho = Ohm \times m^2/m$

$\rho = Ohm - m$

Thus, the S.I unit of resistivity is ohm meter(Ωm)

Resistivity of conductors is of the order of 10^{-8} ohm m

Resistivity of semiconductors is moderate.

Resistivity of insulators is very high (10^{10}- 10^{17}ohm meter.)

Conductance and Conductivity:

Conductance: It is the reciprocal of resistance. It is denoted by G.

$G = 1/R = 1/ohm$.

Since the unit of resistance is ohm, unit of G is ohm $^{-1}$ and is called Simen.

Conductivity: It is the reciprocal of resistivity . It is denoted by sigma (σ)

$Sigma(\sigma) = 1/\rho$

Unit of conductivity is $ohm^{-1}m^{-1}$ = simen m^{-1}

Combination of Resistors: In certain situations we may require less or more value of resistance than the one available to us . In such cases we go for combination of resistors. Resistors can be combined in two ways:

1) Series combination
2) Parallel combination

1) **Series combination:** A combination in which the resistors are connected end to end is called series combination. Here current flowing through all the resistors is same while the potential difference across the resistors varies. It results in an increase in the increase in the resistance of a circuit.

Consider three R_1, R_2, and R3.connected in series as shown below;

If I is the current through the circuit, V is the potential difference supplied by the battery, then applying Ohms law to R_1, R_2, R_3, individually, we get

$V_1 = IR_1$ --------(1)

$V_2 = IR_2$ -------(2)

$V_3 = IR_3$ ------(3)

If V represents the total potential difference supplied by the battery, then,

$V = V_1 + V_2 + V_3$--------(4)
Using (1), (2) and (3) in (4), we get
$V = IR_1 + IR_2 + IR_3$
$V = I [R_1 + R_2 + R_3]$--------(5)

Equivalent Resistor is a resistor which draws the same current as is drawn by the 3 individual resistors, under the same potential difference. Let R_s be the equivalent series resistors.
We have the total potential difference
$V = IR_s$
Using $V = IR_s$ in eq (5), we have
$IR_s = I[R_1 + R_2 + R_3]$
$R_s = R_1 + R_2 + R_3$
This is the equivalent resistance when the resistors are connected in series.

Conclusion of Series Combination:

- Current flowing through all the resistors is same.
- Potential difference gets divided across the resistors.
- The equivalent resistance is equal to the sum of the individual resistances.
- The equivalent resistance is greater than the greatest value of the individual resistances.
- If n resistors are connected in series then

$R_s = R_1 + R_2 \ldots\ldots\ldots R_n$
If $R_1 = R_2 = R_3 = \ldots\ldots\ldots R_n = R$
$R_s = R + R + R \ldots\ldots\ldots R$
$R_s = n R$

Parallel Combination: The combination in which one end of all resistors is connected to one point and the other end to other point is called parallel combination. In this combination , the current through different resistors varies according to the resistance of the resistors while the potential difference across all resistors remains the same.
Let V be the potential difference of the battery and I be the total current flowing through the circuit, current flowing through the individual resistors can be calculated by Ohm's Law as
Current flowing through $R_1 = I_1 = V/R_1$

Current flowing through $R_2 = I_2 = V/R_2$
Current flowing through $R_3 = I_3 = V/R_3$
Since I is the total current through the circuit
$I = I_1 + I_2 + I_3$
$I = V/R_1 + V/R_2 + V/R_3$
$I = V [1/R_1 + 1/R_2 + 1/R_3]$----------(1)

The equivalent resistor is the resistor which draws the same current as is drawn by the individual resistors. Let R_p be the equivalent resistance, then by Ohm's law
$I = V/R_p$ ----------(2)
Comparing (1) and (2), we get

$V/R_p = V[1/R_1 + 1/R_2 + 1/R_3]$

$V = 1/R_1 + 1/R_2 + 1/R_3$

Conclusions of parallel Combination:

- Current flowing through all the resistors is different. More current flows across the resistor whose resistance is low.
- Potential difference across all the resistors remains the same.
- The equivalent resistance is less than the least of the individual resistances.
- If n resistors are connected in parallels each with resistance R, then

  $1/R_p = 1/R_1 + 1/R_2 \ldots\ldots\ldots 1/R_n$

  $1/R_p = 1/R + 1/R \ldots\ldots\ldots 1/R$

  $1/R_p = n/R$

  $R_p = R/n$
- If two resistors R_1 and R_2 are connected in parallel then

  $1/Rp = 1/R_1 + 1/R_2$

  $1/R_p = R_2 + R_1 / R_1R_2$

  $R_p = R_1R_2 / R1+R2$

Temperature coefficient (α):

Resistivity varies with temperature.The variation of resistivity with temperature can be studied using a quantity called temperature coefficient σ. It can be calculated as :

(α)= Change in resistivity/ Original resistivity x change in temperature

Let ρ 1 and ρ 2 be the resistivities of the material at temperature t_1C and t_2C, then

$(\alpha) = \rho_2 - \rho_1 / \rho_1 (t_2 - t_1)$

All conductors have positive temperature coefficient i.e. with increase in temperature resistivity increases. Semiconductors have negative temperature coefficient i.e. thus resistivity decreases with increase in temperature.

If alpha, $\rho_{1,,}$,ρ2, t1, t2 are known then ρ2 can be calculated

Since resistance is directly proportional to resistivity therefore the changed resistance of a material on changing the temperature can also be calculated

$R_2 = \alpha R_1(t_1 - t_2) + R_1$

Unit of temperature coefficient:

Since the unit of resistivity is Ohm meter and that of temperature coefficient comes act to be per ^{0}C as shown below:

Alpha = ρ2- ρ 1/ ρ1 (t2 –t1)

=ohm meter/ ohm m x ^{0}C

=1 /^{0}C or $^0C^{-1}$

Heating Effect of Current:

Whenever current flows through any material, it produces heat. This heat is produced because work is to be done to overcome the collisions suffered by the electrons while passing through a conductor. Different materials produce different amount of heat depending on their nature.

If Q is the charge flowing through a conductor under a potential difference of V volt, then the work done in moving this charge will be given by

$W = QV$ --------(1)

We know

$I = Q/t$

$Q = Ixt$ -------(2)

Using eq (2) in eq (1)

$W = IVt$

Thus work done is equivalent to heat produced

$W = H = IVt$

Also

$H = IVt$ ---------(3)

From Ohm's law,

$V = IR$

Using in eq (3)

$H = I(IR)t = I^2Rt$

This effect of current is called Joule's heating effect

The heat produced depends on:

1) Current flowing through the circuit. More the current , more will be the heating effect.
2) Resistances of material. More the resistance, more will be the heating effect.
3) Time for which the current flows through the material, more the time for which, current remains in the material, more will be the heating effect.

We have

$H = I^2Rt$ ----------(1)

From Ohm's law

$I = V/R$

Using in eq (4)

$H = [V/R]^2 \times R \times t$

$H = V^2/R^2 \times R \times t$

$H = V^2/R \times t$

Applications of Heating Effect:

1) Electric heater, electric iron, water heater etc. work on the heating effect of current. When such electric appliances are connected to the main supply of electricity, these appliances become hot but the connecting wires remain cold. The element of electric heater is made of nichrome. Nichrome has high value of resistivity and high resistance. Since the resistance of nichrome is high, so a large amount of heat is produced in the element of the electric heater. Thus, filament of the electric heater becomes red hot. The connecting wires are made of copper or aluminum. Since their resistivity is low, so a very small heat is produced in the connecting wires made of copper or aluminum.
2) Electric bulbs glow when electric current flows through the filament of the bulb. The filament is made of an electric bulb is made of a thin wire of tungsten , The melting point of filament is high i.e. about 3380

^{o}C. Since the resistance of thin filament is very high, so a large amount of heat is produced. Due to this large amount of heat, the filament becomes hot and emits light and heat.

3) Electric fuse in the electric circuit is a safety device which melts when large current flows through it. Electric fuse is a safety device connected in series with the electric circuit. It is awire of very low melting point e.g. copper or tin lead alloy. When large current flows through a circuit and hence through a fuse wire, a large amount of heat is produced due to which the fuse wire melts and the circuit breaks so that the current flowing in the circuit stops .This saves the circuit from burning.

Electric Power: The electrical energy consumed by any appliance per unit time is called electrical power.
Electric power= Electrical energy / time
Its S. I unit is watt
1watt= I joule/ 1sec
When I joule of energy is consumed in 1 sec, power is said to be 1 watt. The higher unit of power is kilowatt

1KW = 1000W

The various formulae for electric power depends on the expression of electrical energy.

i) $P= IVt/t$
$P= IV$

ii) $P= I^2Rt/ t$
$P= I^2R$

iii) $P= V^2/ R \times t/t$
$P= V^2/R$

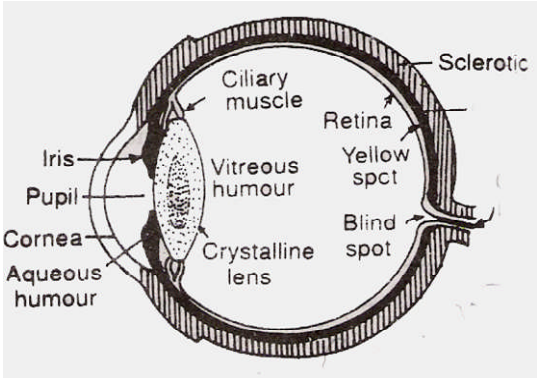
Rating of an electrical appliance:
The voltage and wattage of an appliance taken together is called its rating.
Voltage: The potential difference which can be safely applied across the terminals of an appliance is called its voltage. The voltage supplied in India is 220v.
Wattage: The rate at which the appliance is consuming electrical energy at the rated voltage is called its wattage. E.g. if a bulb has wattage of 60 W at a voltage of 220V, it means the bulb is consuming 60J of electrical energy per second under a potential difference of 220V.
Commercial unit of electric energy: Kilowatt hour is the commercial unit of electrical energy.
One kilowatt hour is the electrical energy consumed by an appliance of one kilowatt for one hour.

$1\ kWh = 1000w \times 1hr$
$=1000J/s \times 60\ x60s$
$=3600 \times 1000\ J$
$1KWh= 3.6 \times 10^6 J$

Structure and working of human eye.

The eyes are sense organs that give human beings and most other animals the most and detailed information about their surroundings. Our eye is the most important optical instrument. The main parts of the human eye are: -

1. **Sclerotica:** - The outer layer or coating of the eye is called sclerotica or sclera. It is opaque. It is made of white tough fibrous tissue. Its function is to protect vital internal parts of eye.
2. **Cornea:** - The front bulging part of the eye is called cornea. It is transparent in nature. Its function is to act as a window to the world i.e., to allow the light to enter in the eye ball. Its refractive index is 1.336.
3. **Choroid**: - It is a grey membrane attached to the sclerotic from inner side. Its function is to darken eye from inside and hence prevent any internal reflection.
4. **Optic nerve**: - It is a bundle of approximately 70,000 nerves originating from brain and entering eye ball. Its function is to carry optical messages (visual messages) to brain.
5. **Ciliary muscles**: - It is a ring of muscles. It has a rich automatic nerve supply. Its function is to alter the focal length of the crystalline lens.
6. **Suspensory ligament**: - it is attached with the ciliary muscle and it helps to hold the lens in position.



7. **Iris: -** Beyond thciliary body, there is a circular shelf-like diaphragm suspended in front of crystalline lens is called Iris. It has a hole in the middle called as pupil. The Iris adjusts the size of the pupil according to the intensity of light received by the eye. This is done by increasing or decreasing the diameter of the pupil.
8. **Crystalline lens**: - It is a double convex lens made up of a gelatinous transparent substance. It is held in position with the help of ciliary muscles. The focal length of the lens can be changed by the action of ciliary muscles.
9. **Vitreous Humour**: - It is a dense jelly like fluid, filling the part of eye between lens and the retina. Its function is (i) to prevent eye ball from collapsing due to atmospheric pressure. (ii) In focussing rays clearly on retina.
10. **AqeousHumour**:- It is a watery, saline fluid, filling the part of eye between cornea and lens. Its function is (i) to prevent the eye from collapsing due to change in atmospheric pressure. (ii) to keep the cornea moist.
11. **Retina or Neuro-sensory tunic**:- This is the innermost, thinnest and softest, but most complicated tunic of an eye ball. It is behind the eye lens and at the dark part of the eye. The retina has a large number of light sensitive cell (about 125 million), which get activated upon illumination and produces electrical signals which are sent to the brain through optic nerves.
12. **Blind spot:-** The region where the optic nerves enter the eye is called blind spot. This region does not have light sensitive cells and hence image formed on this spot is not visible.
13. **Yellow spot:-** The most sensitive part of the retina opposite to pupil is called yellow spot which has the maximum concentration of the light sensitive cells. It is slightly yellow in colour and its function is to form a very clear image by sending a large number of optical pulses to brain.
14. **Working of the eye:-** When light rays reflected back by an object fall upon an eye, these pass through cornea, aqueous humour, lens and vitreous humour before entering the retina. Being transparent, all these parts of an eye function as its transparent refractory media for refracting the light rays. The greatest refraction is done by cornea and next by the lens. The eye lens is a convex lens, so it converges the light rays and produces a real and inverted image of the object on the retina. The sensation of the image formed on the retina is carried to the brain by fibres of optic nerve

system. The nerve centres of sight analyze and co-ordinate these impulses and translate the inverted image into the erect one. Thus it is the brain and not the eye that is responsible for seeing.

Accommodation of an eye:

A normal eye can see the near and far off objects clearly if the sharp images of these objects are formed on the retina. Since the distance between the eye lens and retina is fixed i,e. v=constant so to see the objects at different positions from the eye lens, the focal length of the lens has to be changed accordingly to form sharp images of the objects (as $1/v - 1/u = 1/f$)

If the object to be seen is far off i.e at infinity, then the sharp image of this object can be formed on the retina of the eye by increasing the focal length of the eye lens. The focal length of the lens increases if its thickness decreases. Thus to decrease the thickness of the eye lens and hence to increase the focal length , ciliary muscles are completely relaxed. Now the parallel beam of light coming from far off object is focused on the retina and hence the object is seen clearly.

If the object to be seen is close to the object,then the sharp image of the object can be formed on the retina of the eye lens by decreasing the focal length of the eye lens. The focal length of a lens decreases if its thickness increases .Thus to increase the thickness of the eye lens and hence to increase its focal length, the ciliary muscles contract. Now the beam of light coming from the near object is focused by the lens on the retina.Hence the object is seen clearly.

Thus, the ability of an eye to change the focal length of its lens in such away that a sharp image of the object at different positions from the eye is formed on the retina is called accommodation of an eye.

Power of accommodation: The maximum variation in power of lens when it focuses on the far away and the nearby object.

When an eye is observing an object at infinity, the focal length of the eye is 1.8 cm and accordingly the power of the lens comes out to be

$P = 100/f$ (in cm) $= 100/1.8 = 55.5 \sim 56$D

For observing an object at the near point, the focal length of the eye lens is 1.68 cm and the power comes out to be

$P = 100/1.68 = 59.5$ D ~ 60 D

The maximum variation in the power of eye lens comes out to be 60D- 56 D= 4D

Hence for a normal eye the power of accommodation is 4D.

Far point: The farthest point upto which any eye can see objects clearly is called far point.

For a normal healthy eye, the far point is infinity.

Near point: The nearest point upto which an eye can see clearly is called near point .For a normal eye, the near point is 25 cm.

Least distance of distinct vision:The minimum distance upto which an eye can see clearly or distinctly is called the least distance of distinct vision.For a normal eye, it is equal to the near point i.e. 25 cm.It usually increases with age.

Range of vision: The distance between the far point and the near point of an eye is called the range of vision.For a human being, the range of vision is between 25cm to infinity.

Persistence of vision: The image formed on the retina remains on it for 1/16 th of a second.Although the image formed on the retina is not permanent but it persists on retina for a very short interval of time. The ability of an eye to retain the image of an object for $1/16^{th}$ of second is called persistence of vision.This property is helpful in making movies or animation pictures. The frames of the pictures are moved in 1/24 th of a second which is less than 1/16 th of a second. Since the previous image has not vanished, anew frame is projected giving us a feeling of motion or continuity.

DEFECTS OF VISION: Sometimes, the eye may gradually lose its power of accommodation. In such conditions the person cant see the objects distinctly and comfortably.The vision becomes blurred due to the refractive defects of the eye.
Some of the defects of the vision are:

- Myopia
- Hypermetropia
- Presbyopia
- Astigmatism
- Colour blindness
- Phoris

MYOPIA: It is also called short sightedness.It is the defect of eye in which a person is able to see nearby objects clearly but cannot see the far away objects clearly.
It is caused due to increased converging power of the lens.Theciliary muscles donot relax completely and hence the image of the faraway object is not visible. Sometimes the eye ball get elongated, due to which the image of the distant object is formed in front of the retina.

CORRECTION: In myopia, the converging power of the lens gets increased. In order to rectify it, a concave lens of suitable focal length is used. This lens is called a corrective lens. For the corrective lens,the object is at infinity ($u=\infty$), image is formed at the far point of myopic eye (v= x).For the lens inside , the rays appear to come from the shifted far point and a clear image is formed on the retina.

Focal length of the corrective lens:
Here the object distance u=
Image distance v=-x(shifted far point of myopic eye)
From lens formula
$1/f = 1/v - 1/u$
$1/f= 1/-x - 1/\infty$
$1/f= -1/x$
$f= -x$

Thus the focal length of the lens used for the correction of myopia is equal to the shifted far point of the myopic eye.
HYPERMETROPIA: It is also called long sightedness. In this defect a person is able to see faraway objects clearly, but near object is not visible.Inhypermetropia, the near point of the person gets shifted.
It is caused due to decrease in the converging power of the lens.Theciliary muscles donot stretch completely to reduce the focal length of the eye lens and hence view a nearby object.

CORRECTION:
In hypermetropia,the converging power of the lens decreases, hence a convex lens of a suitable focal length is used to correct the defect.For the corrective lens the object is at the near point of the normal eye i.e.25 cm and the image for this lens is formed at the shifted near point of the eye and the image is formed on the retina.The corrective lens converges the incoming rays which are further converged by the eye lens to form a clear image on the retina.
Focal length of the corrective lens:
Object distance =u
Normal near point = -d
Image distance (v)= shifted near point =-x

From lens formula

$1/f = 1/v - 1/u$

$= 1/-x - 1/-d$

$= -1/x + 1/d$

$= -d + x/xd$

$f = xd/x-d$

Since d is equal to 25 cm and is always less than the shifted near point of the hypermetropic eye i.e. x>d , therefore the above expression of the focal length of the corrective lens is always positive which indicates that the lens is a convex lens.

Presbyopia:A human eye which cannot see the near objects clearly is said to suffer from a defect known as presbyopia. Eye suffering from presbyopia cannot read and write comfortably. This is a kind of hypermetropia which is experienced in old age and therefore, also called old age hypermetropia.
It is caused due to ageing of a person.Theciliary muscles are weakened and the flexibility of the crystalline lens of the human eye decreases with age of the person. As a result, human eye is unable to focus on close objects.

Correction of presbyopia:

1) This is corrected by using a convex lens of suitable power, which is added to glasses, if any for the distant vision.
2) Sometime a person may suffer from both the defects of vision i.e. myopia and hypermetropia. Such type of defects can be corrected by using bifocal lenses which consist of both concave and convex.The upper portion of the spectacles consists of concave lens for the person to see distant objects and lower portion consists of convex lens which help the person to see the nearby objects.
   The cause of hypermetropia is decrease in lengthof the eye ball or increase in focal length of eye lens.But the cause of presbyopia is only increase in focal length of eye lens. The eye ball in presbyopia has normal length.
   It is a natural part of aging process and can't be prevented.

Astigmatism: It is that defect of the eye due to which an image of a distant point source of light is formed not as a point but as a vertical line or horizontal line. A strain is thus imposed on the eye, when viewing an object. In an eye suffering from astigmatism the cornea has widely varying curvatures in different planes. It can be corrected by using a cylindrical lens of proper power.

Colour blindness: It is that defect in the eye due to which a person is unable to differentiate between certain colours. It is a genetic disorder occurring as the result of failure of certain retinal cones or rods to respond to its respective colour. If the blue retinal cone fails to respond, the person will be blind for the colour but he will be able to distinguish red or green colours.However, if a person is unable to distinguish red or green, this defect is referred as Daltonism. It is said that Dalton was colourblind.He could not distinguish between primary colours.

Phoris: Sometimes there is lack of balance among the muscles which hold the two eyes in their position.This lack of balance among the muscles which hold the two eyes in their position causes headache and eye strain. This defect can be removed by using prismatic lens. These are so adjusted so that the line of sight from the distant object is deflected along the optic axis of the eye in the normal adjustment.

Cataract: The eye lens is made up of protein arranged in a particular pattern. Because of this regular arrangement the eye lens is transparent. In some eyes , the regular pattern gets disturbed and this

decreases the transparency of the eye lens. If the arrangement disturbs to a greater extent it may lead to an opaque eye lens. This is called cataract. It is usually found in old age.
This defect cannot be corrected by placing suitable lens before the eye lens. It is corrected by surgical operation by replacing the affected lens by an artificial lens.

PRISM AND REFRACTION THROUGH A PRISM:
PRISM: It is a homogeneous transparent refracting medium bounded by at least two non parallel surfaces inclined at some angle. The two plane surfaces are called refracting faces.The line along which the two refracting faces meet is called refracting edge of the prism and the angle between the two refracting faces is called the angle of prism ,denoted by A.

REFRACTION OF LIGHT THROUGH PRISM:
The refraction of light through a prism follows the laws of refraction . In a prism,refraction takes place on its refracting surfaces ,when light enters the prism (from rarer to denser medium) and when light leaves the prism (from denser to rarer medium).

- When a ray of light …..falls on the face….at an angle of incidence (<i).It undergoes refraction and bends towards the normal.
- The refracted ray …..falls on the face …. At an refraction (< r). The refracted ray ….acts as an incident ray for…. And the ray bends away from the normal.
- When the incident ray…. And the emergent ray …. Are extrapolated, they meet at point …
- The line ….describes the original path of incident ray. The line ….describes the direction of the emergent ray. Thus the ray suffers deviation through an angle D due to refraction through the prism. The angle D is called angle of deviation.

Angle of deviation:The angle between the incident ray and the emergent ray is called the angle of deviation. It gives ameasure of deviation of the incoming ray due to refraction through the prism.
Factors affecting angle of prism:

1) Angle of incidence: When the angle of incidence is increased, the angle of deviation first decreases reaches a minimum and then increases.

When <i =<e, then the prism is at minimum deviation and the angle of deviation when light suffers minimum deviation is called angle of minimumdeviation .

2) Angle of prism:The angle between the two refracting faces is called the angle of prism.The angle of deviation is directly proportional to the angle of prism.
3) Refractive index of the prism material: For the same angle of prism and the same angle of incidence, D depends on the refractive index of the material.Higher the refractive index, greater the deviation.
4) Colour or wavelength of light:For a given prism material, refractive index is the highest for violet and the lowest for red. Therefore the light of violet colourdeviates the most and the light of red colour the least, while passing through the prism.

DISPERSION OF LIGHT: Incoming light can be of two types:
a) Monochromatic light: Light consisting of only one colour or wavelength e.g sodium light
b) Polychromatic light: Light consisting of different colours or wavelengths e.g. sunlight
When monochromatic light passes through the prism, it suffers only refraction, When polychromatic light passes through the prism, it suffers refraction and also gets splitted into its constituent colours.

DISPERSION: The phenomenon of splitting up of white light into its constituent colours on passing through a prism is called dispersion of light. It was first observed by Newton in 1666.

Cause of dispersion: Dispersion is caused as the polychromatic light consists of different coloursand the speed of all colours varies differently on passing through the prism.The speed of different colours gets affected by different magnitudes which results in different colours present in the spectrum although in vacuum the speed of all wavelength is same .The violet colour gets most deviated while the red is deviated least.This is so because red light has maximum wavelength ,therefore the refractive index of the medium is least for red and consequently red light deviates the least .On the other hand, violet has maximum wavelength , therefore the refractive index of the medium is medium is maximum for violet light and consequently violet light deviates the most.

$$\lambda_r > \lambda_v$$

$$_rn < _vn$$

Thus, bending of red light <bending of violet light

Recombination of the spectrum colours to give white light:If two identical prims are placed parallel to each other in upside down position with each other, then the light dispersed by the first prism is recombined by the second prism. The light coming out of the second prism is of white colour. This happens because dispersion produced by the first prism is equal and opposite to that of the second prism.

Spectrum: The band of seven colours obtained after dispersion of light is called spectrum. It is of two types: Pure spectrum and impure spectrum

Pure spectrum: The spectrum in which the constituentcolours are distinct .For pure spectrum various conditions need to be satisfied.

Impure spectrum: The spectrum in which the constituent colours are not distinct from one another but are mixed.e.g. rainbow

Rainbow: The beautiful pattern of seven colours in the form of an arc or bow formed as a result of dispersion of light by water droplets suspended in the air after a rainy day is called as rainbow.

Three phenomenon are responsible for the formation of rainbow:

a)Refraction b) Dispersion c) Total internal reflection

When a number of water droplets assemble together, they will behave as small prisms and when light passes from air into them different colours refract by different amount. The colours are separated into a spectrum. If light enters at certain angles , light is reflected from inside and then it exits the drop. Entering and exiting the drop , the colours get separated. Two rainbows are observed:

i) Primary rainbow

ii) Secondary rainbow

Primary rainbow: When the incident light rays suffer internal reflection once, primary rainbow is formed. This rainbow has red on the outer edge and violet on the inner edge. The line parallel to the direction of suns rays is called axis of rainbow. In primary rainbow, red light forms an angle of 42.7 with the axis of rainbow while violet makes an angle of 40.8.

Secondary rainbow: when light suffers two internal reflections secondary rainbow is formed. It hasviolet on the outer edge and red on the inner i.e the sequence of colours is reverse of that colours in primary rainbow,

Calculations show that violet colour makes an angle of 55 and red makes an angle of 50 with the axis of rainbow.

Scattering of light:The phenomenon of absorption of light and then re-radiating it in different directions is called scattering of light. When light passes through air, it is first absorbed by air molecules ,dust particles , smoke, small water droplets and then re radiated in various directions. This phenomenon is called scattering.Due to scattering of light, the dust and smoke particles become visible.

According to Rayleigh law, the amount of light scattered increases with decrease in wavelength of light.

$$\text{Scattering} \propto 1/\lambda^4$$

However this law is valid only when the size of the scatterer is very small as compared to the wavelength of the incoming light i.e. $x<<\lambda$. It is not valid if the scattered is larger than the wavelength of light.In that case all the wavelengths are scattered nearly equally.

Application of scattering of light:

1) **Sky looks blue**:The scattering of blue coloured light is about 10 times than that of red colouredlight.Theearths atmosphere consists of gases and many different kinds of particulate matter such as smoke particles etc. When the white light from sun falls on the particles in the atmosphere the scattered light consists mainly of blue colour. So, when we look upwards , the sky , far away from the sun, appears blue. If the earth had no atmosphere the sky would look dark.
2) **Reddish colour of the sun during sunrise and sunset:** At sunrise and sunset , the sun is closer to the horizon. The sunlight near the horizon passes through denser layers of the air and covers larger distance before reaching our eyes. Most of the blue light gets scattered. The light that reaches our eyes is of longer wavelength, mainly orange and red. That is why, sun appears reddish at sunrise and sunset.

   At noon time, the sun is overhead. The sunlight passes through the rarer layers of the air and covers shorter distance before reaching our eyes. Only a small amount of blue light gets scattered and most of the light of other colours reach us. As a result, the sun appears white.
3) **White colour of clouds:** The clouds are at much lower height. They are seen due to scattering of light from lower parts of earth's atmosphere , which contains large dust particles, water droplets, ice particles etc. As the size of the scatterer $x>>\lambda$, therefore Rayleigh scattering is not valid . Rather all wavelengths are scattered nearly equally . Hence, clouds generally appear white.
4) **Danger signals are red**: Out of all colours of visible light,red colour has the largest wavelength. When sunlight passes through earth s atmosphere , it gets scattered from large number of molecules in the atmosphere. As the size of scatterer x is much less than the wavelength of light, Rayleigh scattering is valid. As the intensity of the scattered light varies as the 4 th power of wavelength, therefore red color is least scattered . It can be seen from maximum distance. That is why danger signals are red.

Atmospheric refraction:When sunlight enters the earth's atmosphere, then it continuously goes from rarer to the denser medium therefore, refraction of light takes place. The refraction of light taking place in the atmosphere is called atmospheric refraction.

Applications of atmospheric refraction:

Twinkling of stars: Light emitted by stars passes through the atmosphere of the earth before reaching our eyes.The atmosphere of the earth is not uniform but consists of many layers of different densities. The layers close to the surface of the earth are optically denser. As we go higher and higher , the densities of layers and refractive index decreases progressively. As the light from a star enters the upper most layer of the atmosphere, it bends towards the normal as it enters the next layer. This process continues till the light enters our eyes. So due to refraction of light,the apparent position of the star is different from the actual position of the star . Moreover, the different layers of the atmosphere are mobile and the temperature and the density of layers of atmosphere changes continuously. Hence, the apparent position of the star changes continuously. The change in the apparent position of the star continuously leads to the twinkling of a star.

Planets donot twinkle, because planets are very close to the earth as compared to the stars. So the intensity of light we receive from the planets is very large. Therefore the variation in the brightness of planetsis not detected.

Advanced sunrise and delayed sunset:
The sun is visible to us about 2 minutes before the actual sunrise and about 2minutes after the actual sunset because of atmospheric refraction . By actual sunrise, we mean the actual crossing of the horizon by the sun. The time difference between actual sunset and the apparent sunset is about 2 minutes. The apparent flattening of the suns disc at sunrise and sunset is also due to the same phenomenon. Thus, we gain about 4 minutes of additional daylight each day.

Flattening of the sun's disc: Due to atmospheric refraction, at sunrise and sunset, the horizontal diameter of the sun's disc appears to be slightly larger and the vertical diameter appears to be slightly shorter than its actual value. Thus the sun's disc appears to be flattened in the horizontal direction.

Tyndall effect: The phenomenon of scattering of light by dust, smoke and tiny water droplets suspended in air is called Tyndall effect.e.g. When a beam of sunlight enters a dusty room through a window , then the path becomes visible to us, when sunlight passes through a canopy of a dense forest tiny droplets in the mist scatter light.

Spherical aberration:The blurring of the image when the rays coming from a mirror donot meet at single point is called spherical aberration.

Rods and cones:These are the rod shaped cells and respond to the brightness/intensity of the incoming light .They are composed of a protein called rhodopsin.
Cones are the cone shaped cells and help us to distinguish between different colours and are made of a protein called iodpisin .

Total internal reflection: If the incident angle is greater than the critical angle, then the refracted ray is reflected into the same medium as that of the incident ray.This phenomenon is called total internal reflection.
Critical angle: The angle of incidence for which the refracted ray makes an angle of 90^o with the normal is called critical angle.

Dobereiner's Triads:- In 1817, J.W. Dobereiner, a German Chemist tried to arrange the elements with similar properties into groups. He identified certain groups of 3 elements. These groups of 3 elements having similar properties were called Dobereiner's triads after his name. He further observed that when three elements of any particular triad were arranged in order of their increasing atomic masses, the atomic mass of middle element was roughly the mean or average of atomic masses of other two elements.

Eg's of Dobereiner's Triads:

1. The three elements, lithium, sodium and potassium having similar properties constitute a Dobereiner's Triad. As the atomic mass of middle element, Na is 23u which is roughly the average of atomic masses of Lithium and Potassium.

Element	Atomic Mass	Average of atomic mass of Li and K.
Lithium Sodium Potassium	6.9 u 23.0 u 39.0u	6.9 + 39.0 ---------- 2 = 22.9 u

They are called alkali metals because they all react with H_2O to form alkalis.

2. The next three elements Calcium, Strontium and Barium have similar properties. These elements also form a Dobereiner's Triad because the atomic mass of middle element, Strontium is 87.6 u which is nearly same as the average of atomic masses of Ca and Ba.

Element	Atomic Mass	Average of atomic mass of Ca and Ba
Calcium Strontium (Sr) Barium	40.1 u 87.6 u 137.3u	40.1 + 137.3 ---------- 2 = 88.7u

These elements are called alkaline earth metals because their oxides are alkaline in nature and exist in earth.

3. The three elements Cl, Br and Iodine have similar properties. These elements constitute Dobereiner's Traid because the atomic mass of middle element, Br is roughly the average of atomic masses of Cl and Iodine.

Element	Atomic Mass	Average of atomic mass of Cl and I.
Cl Br Iodine	35.5u 79.9u 126.9u	355 + 126.9 ---------- 2 = 81.2u

These elements are called as halogen because they react with metals to form salt.

4. The three elements sulphur, selenium and tellurium have similar properties. They also constitute the Dobereiner's Triad because the atomic mass of middle element selenium is roughly the average of atomic masses of sulphur and tellurium.

Element	Atomic Mass	Average of atomic mass of S and Te
S Se Te	32.06u 78.96 u 127.60 u	32.06 + 127.60 ---------- 2 = 79.83 u

These elements belong to O_2 family because first element of this group is O_2.

Advantages of Dobereiner's system of classification

:

1. It was for the first time a relationship between properties of elements and their atomic masses was established.
2. It was the better way of classification and made the study of elements somewhat easier.
3. It paved a way for new discoveries.

Limitations of Dobereiner's system of classification:

Dobernier could identify only 4 triads from the elements known at that time. All the elements couldn't be arranged as Dobernier's Triads e.g the three elements nitrogen, phosphorous and arsenic has similar properties. Therefore, they can be regarded to form a triad. However, the actual atomic mass of the middle element phosphorous (31.0 u) is much lower than the average atomic mass (44.45 u) of nitrogen and arsenic. Thus, these three elements didn't constitute a Dobereiner's triad.

This system of classification of elements into triads couldn't be applied to all elements known at that time and hence was rejected.

Element	Atomic Mass	Average of atomic mass of S and Te..
Nitrogen Phosphorous Arsenic	14.0 u 31.0 u 74.9 u	140 + 74.9 ---------- 2 = 44.45 u

Newland's Law Of Octaves:

According to Newland's Law of Octaves when elements are arranged in horizontal rows in the order of their increasing atomic masses, the properties of every eighth element were similar to the first one, like the eighth note of the musical scale which is same as that of the first one.This repetition in the properties just like the repetition of the eighth note in an octave of music, so it is known as law of octaves.

Newland started with hydrogen having the lowest atomic mass. He divided elements into horizontal rows, each row consisting of seven elements.

No. of Elements with Atomic masses upto 40u	1	2	3	4	5	6	7
	H	Li	Be	B	C	N	O
	F	Na	Mg	Al	Si	P	S
	Cl	K	Ca				
Elements with atomic masses more than 40 u				Cr	Ti	Mn	Fe
	Co & Ni	Cu	Zn	Y	In	As	Se
	Br	Rb	Sr	Ce,La	Zr		

Advantages of Newland's Law of Octaves

1) It was the simpler system of classification than the previous one.
2) Hydrogen had been placed in the system of classification for the first time.
3) The concept of periodicity became elaborated.

Periodicity

When elements are arranged in the order of their increasing atomic number, similar properties are repeated at regular intervals. This is called as periodicity in the properties of elements, which means a property is repeated at regular interval.

Limitations Of Newland's Law Of Octaves

1. The position of hydrogen was not definite. It could be placed in the group of active metals i.e. lithium, sodium and potassium.
2. Many unlike elements were grouped together e.g. cobalt and nickel were placed in the same column as that of chlorine, fluorine and bromine.
3. Some like metals were placed in different groups. E.g. iron which resembles with cobalt and nickel was placed far away from these elements.
4. This law was applicable only to lighter elements having atomic masses upto 40u i.e. calcium. After calcium every eighth element didn't possess properties similar to that of the first one.
5. After the discovery of the inert gases, the law of Octaves received a setback. The properties of the eighth element were no longer similar to the first one. Now it was the first and ninth element which had similar properties.
6. It was assumed by Newland that only 56 elements existed in nature and no new elements would be discovered in future. This limited the pace of discovery of elements.

Mendeleev's Periodic Classification

A Russian chemist, Mendeleev formed a better system of classification called as Mendeleev's periodic classification, the tabular representation of elements in such a way that the elements with similar properties are placed in same vertical column and dissimilar elements are separated from one another is called periodic table. The property of repetition of physical and chemical properties after regular intervals is called as periodicity.In order to prepare his periodic table, Mendeleev considered two fundamental properties:-

i) Atomic mass ii) Similarity of properties

He prepared 63 cards and on each card he mentioned the properties of each element and the formula of its hydride and the oxide. He then stapled the cards of elements having similar properties and pinned them together on the wall one after another in a vertical column. He found that most of the elements automatically got arranged in order of their increasing atomic masses. He also observed that their occurs recurrence of element with physical and chemical properties after certain regular intervals. On the basis these similarities, Mendeleev proposed his periodic law. It states that "the physical and chemical properties of elements are the periodic functions of their atomic masses".

Description Of Mendeleev's Periodic Table

When Mendeleev gave his periodic table, 63 elements were known. He arranged these elements in increasing order of their atomic masses in horizontal rows (periods) in such a way that elements with similar properties fell under the same vertical column called groups.

Groups:- This table consists of 8 groups (Group I – Group VIII) Group I- Group VII were divided into sub-groups A&B. Group VIII is not divided into any sub-group. The elements which are in the sub-group A are called as normal or representative elements. The elements which are in the sub-group B are called as transition element. Group VIII contains nine transition elements in three sets each containing three elements. These three sets lie in 4^{th} , 5^{th} and 6^{th} period.

Periods: It consists of seven periods (1-7). Period 1 is very short period, 2& 3 are short periods and 4,5,6 , 7 are very long periods.

Advantages Of Mendeleev's Periodic Table

1 **Systematic study of elements:-** Mendeleev was the first scientist who arranged 63 elements into groups and periods. This made the study of elements quite simple because if the properties of one element in a particular group were known, those of others could be easily known.

2 **Prediction Of New Elements And Their Properties:-** Mendeleev left some blank spaces in the periodic table for those elements which were known at that time e.g. Scandium, Gallium and Germanium were not known at that time. Mendeleev had named these elements as Eka boron, Eka aluminium and Eka silicon. Later on these elements were discovered and Mendeleev's predictions were found to be correct.

3 **Position Of Noble Gases**: After the discovery of noble gases, they were introduced in this table as zero group without disturbing the table.

4 **Correction Of Doubtful Atomic Masses:-** At the time when Mendeleev gave his periodic table, gold and platinum were known to have atomic masses of 196.2 and 196.7 respectively. But Mendeleev placed gold after platinum in the periodic table and predicted that atomic masses

of gold and platinum were incorrect. Later on it was found that atomic mass of platinum was lower than that of gold.

Limitations Of Mendeleev's Classification:

1. **Anomalous Position Of Hydrogen**:- Hydrogen has one electron in its outer most shell. Alkali metals also have one electron in their outermost shell. Therefore hydrogen and alkali metals have many similar properties.So hydrogen can be placed along with the alkali metals of group IA of the Mendeleev's periodic table. Also hydrogen has one electron less than the nearest noble gas helium. Halogens also have one electron less than their nearest noble gas.So many properties of hydrogen resemble the halogens. It could be placed with halogens as well. Thus the position of hydrogen is anomalous in the Mendeleev's periodic table.
2. **Position Of Isotopes:-** In Mendeleev's periodic table, elements are arranged in order of their increasing atomic masses. Therefore isotopes should be placed at the different positions in the periodic table, but since the isotopes have similar chemical properties, they should be placed at the same position.

3. **No Resemblance Of Elements Within Sub-Groups**:- In Mendeleev's periodic table, elements placed in the group have similar chemical properties.But there is no similarity in the properties of elements in the two sub-groups in a particular group e.g.lithium, sodium, potassium, rubidium and cesium present in group IA are quite differ from metals such as Copper, silver, gold present in group IB.

4. **Different Groups For Similar Elements**:- In some cases, elements with similar properties have been placed in different groups e.g. Copper and mercury have many similar properties but copper has been placed in group IB and Hg has been placed in group IIB.

5. **Uncertainty In Prediction Of New Elements:** In Mendeleev's periodic table, the elements are arranged in increasing order of their atomic masses. But the atomic masses do not increase in a regular manner in going from one element to the next. Further the difference in atomic masses between two successive elements is small among lighter elements but large among heavier elements. Therefore it is not possible to predict how many new elements could be discovered between two known elements especially among heavier elements.

6. **Anomalous Position Of Some Pairs Of Elements**: Although the elements in Mendeleev's periodic table have been arranged in order of increasing atomic masses yet in some cases elements have been arranged on the basis of similarity in properties. As a result, element with higher atomic mass has been placed before an element with lower atomic masses e.g. cobalt (58.93 u) was placed before nickel (58.71u) with lower atomic mass.

Modern Periodic Law

In 1913, Moseley showed that physical and chemical properties of the elements are determined by their atomic number and not by their atomic mass. Thus, atomic number of an element is the more fundamental property than atomic mass. The periodic law was then modified. According to modern periodic law "the physical and chemical properties of the elements are the periodic functions of their atomic number" on the basis of modern periodic law, classification of elements is represented by a table known as Modern Periodic Table.

Basic Of Classification Of Elements

According to Modern Periodic Law, the properties of elements are periodic functions of their atomic numbers. This means that when elements are arranged in increasing order of their atomic numbers, the properties of elements are repeated after certain regular intervals is called periodicity in properties.

Modern Periodic Table

In Modern Periodic Table, elements are arranged in the increasing order of their atomic numbers. This table was prepared by Bohr and is based upon the electronic configuration of elements. He arranged elements in groups and periods on the basis of similarity and differences in their electronic configuration. Modern Periodic table consists of 18 vertical columns called groups and 7 horizontal rows called periods. The groups are numbered from 1-18 and periods are numbered from 1-7.

Description of groups:

1. Elements of groups 1&2 on the left and groups 13-18 on the right are called normal or representative elements.
2. Elements of group 1 are called alkali metals, group '2' are alkaline earth metals, group 13 boron family, group 14 carbon family, group 15 nitrogen family or pnicogens, group 16 oxygen family or chalcogens, group 17 halogens and group 18 inert or noble gases.
3. There are in all 50 representative elements in the table.
4. The elements of group 3-12 are transition elements because their properties lie in between the properties lie in between the properties of elements of group 1 &2 on the left side and those of groups 13-18 on the right side of the periodic table.
5. There are 40 transition elements in the periodic table.
6. The strongly metallic elements occupy group 1 & 2 on the left side of transition elements.
7. The non-metallic elements are placed on the right side of transition elements.
8. The elements which lie at the border line of these two are called metalloids.
9. All the elements in any particular group have identical outer shell configuration. However, the number of filled shells increases as we move down the group.
10. Elements in a group do not have consecutive atomic numbers.

Description of periods:

1. The no. of elements in a period is fixed.
2. The no. of elements in any period is given by maximum no. of electrons that can be accommodated in that particular shell.
3. In order to avoid the periodic table becoming too lengthy, two series of 14 elements each have been placed at the bottom of the periodic table. The first series having atomic no.'s 58-71 are called lanthanides or rare earth metals. The second series having atomic no's 90-103,lying in the seventh period are collectively called actinides. All the actinides are radioactive.The first three elements of actinides occur naturally while 11 elements have been prepared artificially through nuclear reactions. These 11 elements are called transuranic elements. Both lanthanides and actinides are collectively called as inner transition elements because they form a series within the transition series and are 28 in number.
4. Atoms of different elements with same number of occupied shells are placed in the same period.
5. Elements in a period have consecutive atomic numbers.
6. Each period starts with the filling of electrons in a new electronic shell.

Trends in the Modern Periodic Table:

The physical and chemical properties of an element mainly depend upon its outer electronic configuration. Since the outer electronic configuration changes as we go from left to right in a period. On the other hand,

within the group, elements have same electronic configuration. Therefore, their chemical properties are similar but their physical properties show regular gradation as we move down the group from top to bottom due to a corresponding increase in the number of filled inner shells.

Trends in the properties:

1. Valency:
   a) On moving from left to right in a period, the number of valence electrons increases. The valency of the elements increases from 1-4 and then decreases to zero.
   b) Variation of valency in a group:-All the elements in a group have similar outer electronic configuration i.e. they have same no. of valence electrons. Therefore, the valency of all the elements is fixed or same. E.g. alkali metals have one electron in their valence shells. Similarly, all the elements of group 17 i.e. halogens have seven electrons in valence shells and thus need one electron to complete its outlet. Thus, the valency of all the elements of group 17 is also 1.Moving on similar lines, we can show that valency of group 2 is 2, those of group 13 are 3 and group 14 is 4. The valency of all the elements of group 18 i.e. noble gases is zero.

Atomic radii:

a) **Variation of atomic radii in a period:-** On moving from left to right in a period, the atomic radius decreases. As the atomic no. of each succeeding element increases by 1. This means that the no. of protons in the nucleus and the no. of electrons in the extra electrons takes place in the same shell but the addition of proton to the nucleus increases the nuclear charge by 1. Due to this increased nuclear charge, the electrons are attracted closer to the nucleus and hence the atomic size decreases. The reason for the exceptional behavior is that in case of noble gases, atomic radius refers to the Vanderwaal's radius and Vanderwaals radii is largest of all.
b) **Variation of atomic radii in a group**: On moving down the group, the atomic radii gradually increase. As new shell of electrons is added at each succeeding element. Thus, the no. of shells increases. As a result, distance between nucleus and the last shell increases therefore atomic radii increases.

Metallic and Non-metallic character: Generally, metals possess 1,2 or 3 electrons in their respective valence shell and thus have strong tendency to lose these electrons. On the other hand, non-metals have 4-8 electrons in their respective outermost shell and thus have tendency to gain electrons.

a) **Variation in period:** As we move from left to right, the no. of valence electrons increases from 1-7. As a result, the effective nuclear charge acting on the valence electrons increases and hence the tendency of the element to lose electrons decreases. Conversely,as the effective nuclear charge increases, the tendency of the element to gain electrons increases.
   Thus, on moving from left to right in a period, the metallic character decreases while the non-metallic character increases.
b) **Variation in a group**: On moving down a group, the metallic character increases because the atomic size increases. As a result, the force of attraction between the nucleus and the valence electrons decreases. Therefore, the tendency of the element to lose electrons increases.
   Alternatively, as we move down the group, the force of attraction between the valence electrons and the nucleus for the incoming electrons decreases. Therefore, the tendency of the element to accept electrons decreases and hence the non-metallic character decreases as we move down the group. Likewise, the oxides of metals are basic, while those of non-metals are acidic in nature.

Chemical reactivity:
All the elements in the periodic table are not chemically equally reactive. Some are more reactive and others are less reactive. The chemical reactivity depends upon the position of an element in the table which in turn depends upon its outer electron configuration.

a) **Variation of chemical reactivity along a period:-** As we move from left to right across a period, the chemical reactivity of elements first decreases and then increases. E.g. in the third period, sodium is most reactive element followed first by magnesium and then by aluminium while the next element silicon being metalloid is the least reactive of the four. As we move further, the chemical reactivity increases. Phosphorous is quite reactive, sulphur is little more reactive than phosphorous while chlorine is very reactive.

b) **Variation of chemical reactivity in a group:-** The elements in a group have similar outer electronic configuration and hence have the same no. of valence electrons. Therefore, all the elements of a group have similar chemical reactivity of elements vary gradually.

1. **Reactivity of metals in a group:** The chemical reactivity of metals increases as we move from top to bottom in a group. The reason for this is that the chemical reactivity of metals depends upon their tendency to lose electron. As we move down the group, their tendency to lose electrons increases due to an increase in atomic size and hence the reactivity increases.

2. **Reactivity of non-metals in a group:** The chemical reactivity of non-metals decreases from top to bottom in a group. The reason being that the chemical reactivity of non-metals depends upon their tendency to gain electrons. As we move down the group, their tendency to gain electrons decreases due to an increase in atomic size. As a result, their tendency to accept electrons decreases and hence the reactivity of non-metals decreases as we move down the group.

Q **Explanation of limitations of Mendeleev's Periodic Table**:
In the modern periodic table, elements are arranged in increasing order of their atomic numbers. This periodic table nicely explains the three main limitations of the Mendeleev's periodic table as discussed below:

1. **Position of isotopes**: All the isotopes of an element have the same atomic number. Therefore they can be placed at one place in the same group of the periodic table.

2. **Anomalous position of some pairs of elements:-** In Mendeleev's periodic table, cobalt with slightly higher atomic mass (58.93 u) was placed before nickel with slightly lower atomic mass (58.71u). This limitation has been removed in the Modern Periodic Table as follows.
The atomic number of cobalt is 27 while that of nickel is 28. Since in the Modern Periodic table, elements are arranged in increasing order of their atomic numbers, therefore, cobalt with lower atomic no. comes first and nickel with higher atomic number comes later.

3. **Uncertainty in prediction of new elements:** Since atomic masses do not increase in a regular manner in going from one element to the next, therefore, in Mendeleev's periodic table, it was not possible to predict as to how many new elements could be discovered between two known elements. This limitation has been removed in the Modern Periodic Table because atomic no.'s increase by one in going from one element to the next. Therefore, the no. of new elements to be discovered in between any two known elements is equal to the difference in their atomic or proton numbers.

Advantages of Modern Periodic Table: The main advantages of the Modern Periodic Table are:

1. Easy to remember and reproduce: The elements in the Modern Periodic table are arranged in increasing order of their atomic numbers. Since the atomic numbers increase in the serial order, therefore, it is much easy to remember and reproduce the Modern periodic Table than Mendeleev's Periodic table.

2. Position of isotopes: All the isotopes of an element have the same atomic number. Therefore they can be placed at one place in the same group of the periodic table.

3. **Prediction of properties of elements:** The positions of elements in the Modern Periodic Table are linked to their electronic configurations. Therefore, by looking at the position of any element in the

   Modern Periodic Table, it is possible to predict its properties. Conversely, if we know the properties of any element, we can predict its position in the Modern Periodic Table.

4. Anomalous position of some elements: Which were earlier misfit in the Mendeleev's periodic table have been justified.

5. Uncertainly in prediction of new elements has been removed.

Defects of the Modern Periodic Table:

The main defects of modern periodic table are:-

1. **Position of hydrogen**: Hydrogen resembles alkali metals in its electronic configuration (have one electron in the valence shell) and some other properties. Therefore, it can be placed in group 1 along with alkali metals. Hydrogen also resembles halogens in its electronic configuration (have 1 electron less than the nearest noble gas configuration) and in some other properties. Therefore, it can be placed in group 17 along with halogens. At the same time, hydrogen differs from both alkali metals and halogens in some other properties (oxide of H i.e. H_2O is neutral, oxides of alkali metals are basic and those of halogens are acidic). Thus, the position of hydrogen still remains to be controversial even in the Modern Periodic table. However, for convenience, it is usually placed in group 1, period1, because it has the lowest atomic no. (1) and lowest atomic mass (1.008u).
2. On the basis of electronic configuration, helium should be placed in group 2 along with alkaline earth metals but it has been placed in group 18 along with noble gases on the basis of its properties.
3. No proper position has been assigned to lanthanides and actinides, i.e they have not been included in the main body of the periodic table.

Textual Questions

Q1: Did Dobereiner's triads also exist in the columns of Newlands' Octaves? Compare and find out.

Ans. Only one triad of Dobereiner's triads exists in the columns of Newlands' octaves. The triad formed by the elements Li, Na, and K of Dobereiner's triads also occurred in the columns of Newlands' octaves.

Dobereiner's triads

Li	Ca	Cl
Na	Sr	Br
K	Ba	I

Newlands' octaves

H	Li	Be	B	C	N	O
F	Na	Mg	Al	Si	P	S
Cl	K	Ca	Cr	Ti	Mn	Fe
Co& Ni	Cu	Zn	Y	In	As	Se
Br	Rb	Sr	Ce &La	Zr		

Q2 What were the limitations of Dobereiner's classification?

Ans. **Limitation of Dobereiner's classification:**
All known elements could not be classified into groups of triads on the basis of their properties.

Q3 What were the limitations of Newlands' Law of Octaves?

Ans. Limitations of Newlands' law of octaves:
(i) It was not applicable throughout the arrangements. It was applicable up to calcium only. The properties of the elements listed after calcium showed no resemblance to the properties of the elements above them.
(ii) Those elements that were discovered after Newland did not follow the law of octaves.
(iii) The position of cobalt and nickel in the group of the elements (F, Cl) of different properties could not be explained.
(iv) Placing of iron far away from cobalt and nickel, which have similar properties as iron, could also not be explained.

Q4: Use Mendeleev's Periodic Table to predict the formulae for the oxides of the following elements:
K, C, Al, Si, Ba.
K is in group 1. Therefore, the oxide will be K_2O.
C is in group 4. Therefore, the oxide will be CO_2.
Al is in group 3. Therefore, the oxide will be Al_2O_3.
Si is in group 4. Therefore, the oxide will be SiO_2.
Ba is in group 2. Therefore, the oxide will be BaO.

Q5: Besides gallium, which other elements have since been discovered that were left by Mendeleev in his Periodic Table? (any two)

Ans. Scandium and germanium

Q6: What were the criteria used by Mendeleev in creating his Periodic Table?

Ans. Mendeleev's periodic table was based on the observation that the properties of

elements are a periodic function of their atomic masses. This means that if elements are arranged in the increasing order of their atomic masses, then their properties get repeated after regular intervals.

Q7 Why do you think the noble gases are placed in a separate group?

Ans. Noble gases are inert elements. Their properties are different from the all other elements. Therefore, the noble gases are placed in a separate group.

Q8: How could the Modern Periodic table remove various anomalies of Mendeleev's Periodic Table?

An. Mendeleev was unable to give fixed position to hydrogen and isotopes in the periodic table. In Mendeleev's periodic table, the increasing manner of atomic mass of the elements is not always regular from one to its next. It was believed that a more fundamental property than atomic mass could explain periodic properties in a better manner.
It was Henry Moseley who demonstrated that atomic number of an element could

explain periodic properties in a better way than atomic mass of an element and arranged the elements in increasing order of their atomic numbers. Then it was found that the various anomalies of Mendeleev's periodic table were removed by the modern periodic table.

Q9: Name two elements you would expect to show chemical reactions similar to magnesium. What is the basis for your choice?

Ans. Calcium (Ca) and strontium (Sr) are expected to show chemical reactions similar to magnesium (Mg). This is because the number of valence electrons (2) is same in all these three elements. And since chemical properties are due to valence electrons, they show same chemical reactions.

Q10: Name
(a) three elements that have a single electron in their outermost shells.
(b) two elements that have two electrons in their outermost shells.
(c) three elements with filled outermost shells.

Ans.

(a) Lithium (Li), sodium (Na), and potassium (K) have a single electron in their outermost shells.
(b) Magnesium (Mg) and calcium (Ca) have two electrons in their outermost shells.
(c) Neon (Ne), argon (Ar), and xenon (Xe) have filled outermost shells.

Q11 (a) Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements?
(b) Helium is an unreactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common?

Ans. (a) Yes. The atoms of all the three elements lithium, sodium, and potassium have one electron in their outermost shells.

(b) Both helium (He) and neon (Ne) have filled outermost shells. Helium has a duplet in its K shell, while neon has an octet in its L shell.

Q12: In the Modern Periodic Table, which are the metals among the first ten elements?
Ans. Among the first ten elements, lithium (Li) and beryllium (Be) are metals.

Q13: By considering their position in the Periodic Table, which one of the following elements would you expect to have maximum metallic characteristic?
Ans. Since 'Be' lies to the extreme left hand side of the periodic table, Be is the most metallic among the given elements.

Exercise

Q14: Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic Table.
(a) The elements become less metallic in nature.

(b) The number of valence electrons increases.

(c) The atoms lose their electrons more easily.

(d) The oxides become more acidic.

Ans.
(c) The atoms lose their electrons more easily.
(On moving from left to right across the periods of the periodic table, the non-metallic character increases. Hence, the tendency to lose electrons decreases.)

Q15: Element X forms a chloride with the formula XCl_2, which is a solid with a high melting point. X would most likely be in the same group of the Periodic Table as
(a) Na (b) Mg (c) Al (d) Si
Ans. (b) X would most likely be in the same group of the Periodic Table as magnesium (Mg).

Q16: Which element has

(a) two shells, both of which are completely filled with electrons?

(b) the electronic configuration 2, 8, 2?

(c) a total of three shells, with four electrons in its valence shell?

(d) a total of two shells, with three electrons in its valence shell?

(e) twice as many electrons in its second shell as in its first shell?
Ans. (a) Neon has two shells, both of which are completely filled with electrons (2 electrons in K shell and 8 electrons in L shell).
(b) Magnesium has the electronic configuration 2, 8, 2.
(c) Silicon has a total of three shells, with four electrons in its valence shell (2 electrons in K shell, 8 electrons in L shell and 4 electrons in M shell).
(d) Boron has a total of two shells, with three electrons in its valence shell (2 electrons in K shell and 3 electrons in L shell).
(e) Carbon has twice as many electrons in its second shell as in its first shell (2 electrons in K shell and 4 electrons in L shell).

Q17: (a) What property do all elements in the same column of the Periodic Table as boron have in common?
(b) What property do all elements in the same column of the Periodic Table as fluorine have in common?

Ans. (a) All the elements in the same column as boron have the same number of valence electrons(3).Hence, they all have valency equal to 3.
(b) All the elements in the same column as fluorine have the same number of valence electrons (7). Hence, they all have valency equal to 1.

Q18: An atom has electronic configuration 2, 8, 7.
(a) What is the atomic number of this element?
(b) To which of the following elements would it be chemically similar? (Atomic numbers are given in parentheses.)
N (7) F (9) P (15) Ar (18)

Ans. (a) The atomic number of this element is 17.
(b) It would be chemically similar to F(9) with configuration as 2, 7.

Q19: The position of three elements A, B and C in the Periodic Table are shown below

Group 16 Group 17

A

B C

(a) State whether A is a metal or non-metal.

(b) State whether C is more reactive or less reactive than A.

(c) Will C be larger or smaller in size than B?

(d) Which type of ion, cation or anion, will be formed by element A?

Ans. (a) A is a non-metal.
(b) C is less reactive than A, as reactivity decreases down the group in halogens.
(c) C will be smaller in size than B as moving across a period, the nuclear charge increases and therefore, electrons come closer to the nucleus.
(d) A will form an anion as it accepts an electron to complete its octet.

Q20: Nitrogen (atomic number 7) and phosphorus (atomic number 15) belong to group15 of the Periodic Table. Write the electronic configuration of these two elements. Which of these will be more electronegative? Why?

Ans.

Element	**K**	**L**	**M**
Nitrogen	**2**	**5**	
Phosphorus	**2**	**8**	**5**

Nitrogen is more electronegative than phosphorus. On moving down a group, the number of shell increases. Therefore, the valence electrons move away from the

nucleus and the effective nuclear charge decreases. This causes the decrease in the tendency to attract electron and hence electronegativity decreases.

Q21: How does the electronic configuration of an atom relate to its position in the Modern Periodic Table?

Ans. In the modern periodic table, atoms with similar electronic configurations are placed in the same column. In a group, the number of valence electrons remains the same.
Elements across a period show an increase in the number of valence electrons.

Q22: In the Modern Periodic Table, calcium (atomic number 20) is surrounded by elements with atomic numbers 12, 19, 21, and 38. Which of these have physical and chemical properties resembling calcium?

Ans. The element with atomic number 12 has same chemical properties as that of calcium. This is because both of them have same number of valence electrons(2).

Q23: Compare and contrast the arrangement of elements in Mendeleev's periodic Table and the Modern Periodic Table.

Mendeleev's periodic table	**Modern periodic table**
1. Elements are arranged in the increasing order of their atomic masses.	1.Elements are arranged in the increasing order of their atomic numbers.
2. There are a total of 7 groups (columns) and 6 periods (rows).	2.There are a total of 18 groups (columns) and 7periods (rows).
3. Elements having similar properties were placed directly under one another.	3.Elements having the same valence shell are present in the same period while elements having the same number of valence electrons are present in the same group.
4. The position of hydrogen could not be explained.	4. Hydrogen is placed above alkali metals.
5. No distinguishing positions for metals and non-metals.	5.Metals are present at the left hand side of the periodic table whereas non-metals are present at the right hand side

Reproduction:-

Is a process by which a living organism is able to produce more of its own kind. Reproduction is an energy spending process which is not at all essential to maintain the life of an individual organism. Even then, the organisms reproduce. The process of reproduction is essential for the existence and continuity of a species. The continuity of life on earth, from its origin to the present day, has been possible only because of reproduction.

Do Organisms Create Exact Copies Of Themselves?

- In asexual reproduction, a new individual develops directly from specialized or unspecialized parts of a single parent without involving fusion of sex cells (gametes). Therefore, offsprings resulting from the asexual reproduction are exactly identical to the parent except in size and are called clones. Each individual of a clone is called ramet.
- In sexual reproduction, first haploid (n) gametes are produced by meiotic division, then fusion of gametes takes place leading to the formation of a diploid (2n) zygote. The zygote, then, divides by mitotic division and develops into an individual.
- Thus, reproduction basically involves cell division. Before a cell can divide, it must unravel its chromosomes, and copy all its DNA (Deoxyribonucleic acid), so that each new daughter cell can get a complete copy of the genetic information.
- Key concept of reproduction is the formation of a DNA copy. By the use of biochemical reactions, cells build up copies of their DNA. DNA copying is accompanied by the formation of an additional cellular apparatus and then the DNA copies separate, each with its own cellular apparatus. Thus, a cell divides to give rise to two daughter cells.
- DNA present in a cell carries information for making proteins which help in expression of body characters. If this information is altered, it will eventually lead to the formation of altered proteins and hence lead to abnormal body characters.
- Alternation of DNA actually depends on how accurately the reactions which are involved in DNA replication (copying of DNA) occurs. No biological reaction is absolutely reliable. Therefore, it can be expected that the process of copying of DNA may have some variations each time it occurs. As a result, the DNA copies generated will be similar, but may not be identical to the original.
- Some of these variations might be so drastic that the new DNA copy cannot work with the cellular apparatus it inherits. Such a newborn cell will simply die. On the other hand, there could still be many other small variations in the DNA copies that would not lead to such a drastic outcome. Thus, the surviving cells are similar, but not identical to the parent cell. This inbuilt tendency for variation during reproduction is the basis of evolution of new species.

Significance of variation:

- Population of several organisms fill well-defined places, in the ecosystem, using their ability to reproduce. The consistency of DNA copying during reproduction is important for the maintenance of body design that allows the organism to use that particular ecosystem. Therefore, reproduction is linked to the stability of populations of species.
- Sometimes, there can be changes in the ecosystem or organisms such as rise or fall in the earth's temperature, changes in water levels or meteorite hits etc. If a population of reproducing organisms were suited to a particular ecosystem and if the ecosystem were drastically altered, the population could be wiped out. However, if some variations have occurred in a few individuals in these populations, there would be some chance for them to survive. For instance, if there were a

population of bacteria living in temperate waters, and if the temperature of water increases due to global warming, most of these bacteria would die, but the few variants resistant to heat would survive and grow further. Variations here are thus useful for the survival of species over time.

Types Of reproduction
Living organisms reproduce in two ways- asexual reproduction and sexual reproduction.

Asexual Reproduction:
Asexual reproduction involves the production of an offspring from a single parent without the fusion of gametes. Asexual reproduction mostly occurs in unicellular organisms (like bacteria, protozoans, etc), some plants (like algae, fungi, bryophytes, etc) and certain multicellular animals (like sponges and Hydra). In this method of reproduction, the young one receives all its genes from one parent.

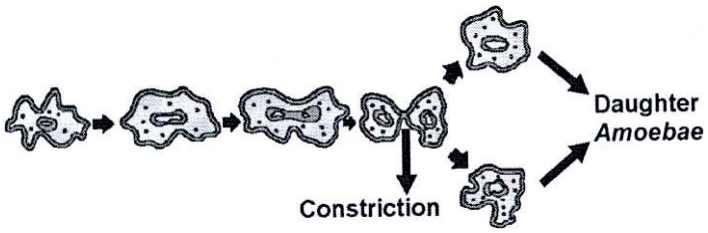
Basic features of asexual reproduction
- Only one organism is involved; different sexes are not involved.
- All the cell divisions during this type of reproduction are either mitotic or amitotic.
- New individuals produced are genetically identical to the parents.
- It is a rapid mode of multiplication.
- No gametes are formed and hence no fertilization takes place.

Types of asexual reproduction
There are many types of asexual reproduction such as fission, fragmentation etc.

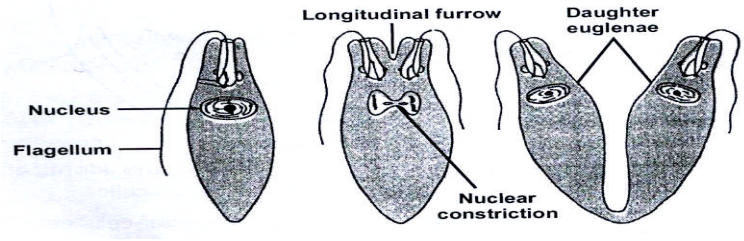
Fission:-Fission may be defined as the splitting of an unicellular organism into two or more than two separate daughter cells.
This type of reproduction is common in unicellular organisms, like Amoeba, Paramecium and Euglena. Fission is of two types – binary fission and multiple fission.

Binary fission:-This is the division of parent cell into two small, nearly equal sized identical daughter cells. The two daughter cells then grow into adult organisms.
In this type of reproduction, the nucleus first divides into two nuclei, this is followed by the divison of cytoplasm. The cell finally splits into two daughter cells. The two daughter cells grow fully and divide again.
This method of reproduction occurs in favourable conditions of life. The daughter cells formed are morphologically and genetically identical. Binary fission can be seen in bacteria, Amoeba, yeast and Euglena. Binary fission is of following types:

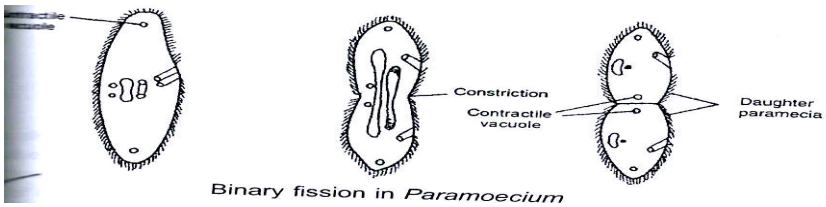
i) **Simple Binary Fission (Irregular Binary Fission)**:- Division can occur through any plane, i.e., the plane of division can pass through and axis, e.g. Amoeba.



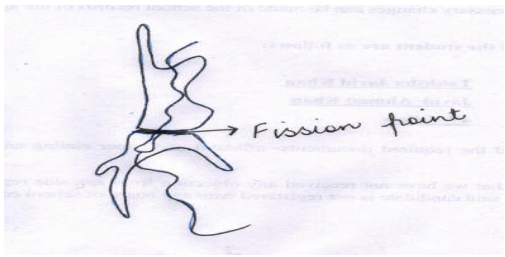
ii) **Longitudinal Binary Fission**: The plane of fission passes along the longitudinal axis of the organism, e.g. Euglena, Vorticella and Leishmania.



iii) **Transverse Binary Fission**:- The plane of binary fission runs along the transverse axis of the individual, e.g., Paramoecium, diatoms, bacteria.



iv) **Oblique Binary Fission**:- The plane of division is oblique. It occurs in dinoflagellates, e.g., Ceratium.

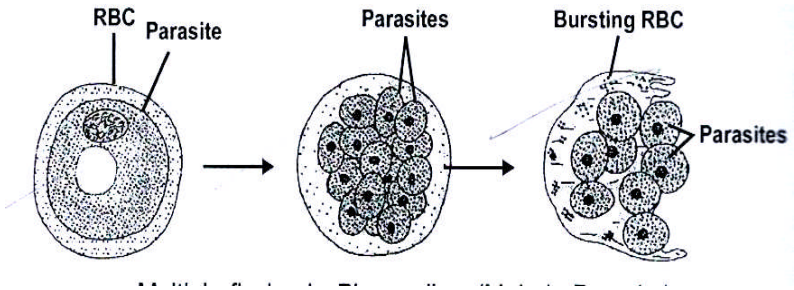


Oblique Binary Fission In Ceratium

Differences between Binary Fission and Multiple Fissions.

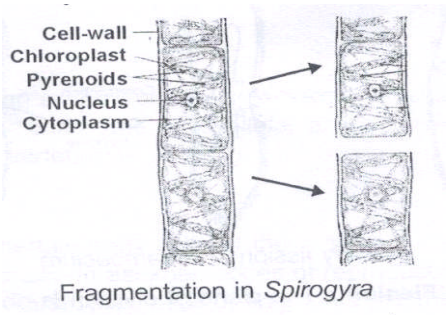
Binary Fission	Multiple Fission
1. It gives rise to two daughter individuals.	1. It forms many (more than two) daughter individuals.
2. It occurs during favourable conditions.	2. It can occur under favourable (e.g. Plasmodium) as well as unfavourable conditions (e.g. Amoeba).
3. Nucleus of the parent cell divides only once to form two daughter cells.	3. Nucleus of the parent undergoes repeated divisions to form a number of daughter nuclei.
4. Cytoplasm divides after nuclear division.	4. Cytoplasm does not divide after every nuclear division.
5. No part of the parent body is left unused. Example: Amoeba, Paramecium	5. A part of the body, covering and residual cytoplasm, is left behind. **Example**. Plasmodium, Amoeba (encysted)

Multiple fission:-It is a type of fission in which many individuals are formed from a single parent. This method of reproduction occurs in unfavourable conditions like drought, climatic conditions. The unicellular organism develops a protective covering called cyst over the cell. The nucleus of the cell divides repeatedly producing many nuclei. Later on, each nucleus is surrounded by small amount of cytoplasm and many daughter cells are produced within the cyst.
When conditions are favourable the cyst breaks and small offsprings are liberated. This type of reproduction is seen in many algae and in some protozoans, such as the malarial parasite (Plasmodium). Amoeba also shows multiple fission under unfavourable conditions.



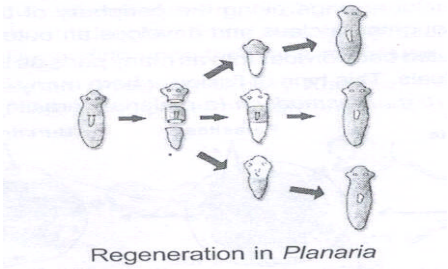
Multiple fission in plasmodium

Fragmentation:- It is a mode of asexual reproduction in which an organism reproduces by breaking of their bodies into small pieces called fragments which later on grow into new individuals.
Fragmentation is a method of reproduction in some multicellular organisms that have simple body organization. These organisms are comprised of a random collection of cells without differentiation of specialized tissues and organs.
This method of reproduction is found in many organisms such as planaria, hydra, spirogyra, etc.



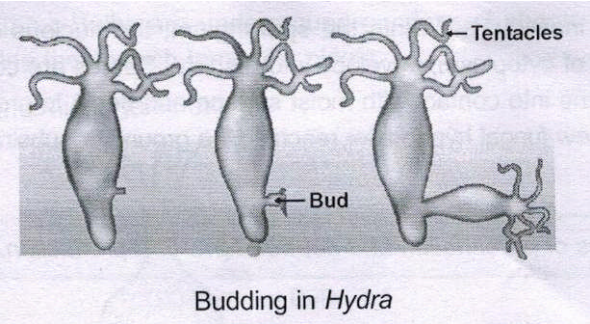
Fragmentation in *Spirogyra*

Regeneration:- It is defined as the ability of an organism to regeneration its lost parts of the body which have been removed by injury or autonomy.
Regeneration is common in lower plants e.g. algae, fungi, etc and animals also like hydra, planaria and sponges. E.g. if the body of planaria is cut into small pieces, each piece can regenerate into an entire individual.

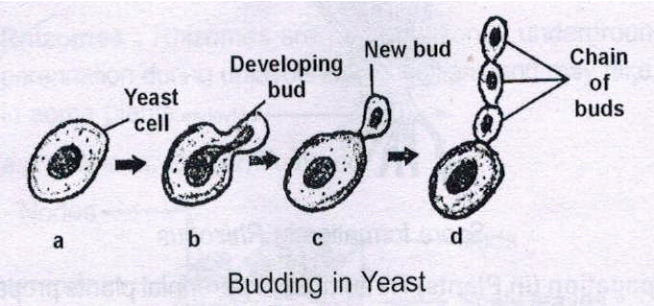


Regeneration in *Planaria*

Budding:- Budding may be defined as the production of new individual from an outgrowth of the parent individual. Budding occurs in yeast, some protozoans and certain lower animals e.g Hydra, Scypha, Syllis, Salpa, etc.
In multicellular organisms such as Hydra, a small outgrowth arises from one side of the body. The outgrowth grows, and develops adult like structure and finally gets detached to lead an independent life.

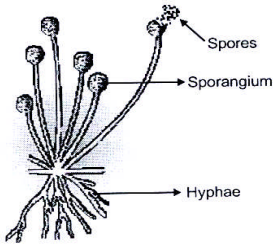


Budding in *Hydra*



Budding in Yeast

Spore formation:- Reproduction by the formation of spores is a common method of asexual reproduction in some bacteria and most of the fungi. During the formation of spores, the fungus develops an enlarged sporangium. The nucleus of developing sporangium divides several times. Each nucleus, within the developing sporangium, gets surrounded by a bit of cytoplasm and develops into a spore. The spores mature inside the sporangium. They are liberated by rupturing of sporangial walls and dispersed to grow on new substratum by forming new fungal hypha. Each spore then grows into a new individual e.g. Rhizopus, mucor, aspergillus, pencillium, bread mould etc.



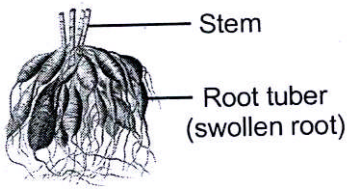
Spore formation in *Rhizopus*

Spore:- It is a single or several celled reproductive structure that detaches from the parent and gives rise, directly or indirectly, to a new individual.

Vegetative propagation (Vegetative reproduction)
Vegetative propagation in plants is a method of asexual reproduction in which the parts other than seeds are used as propagules (i.e. the structural unit that is employed in place of seed). It is a method of propagation in
those plants which have lost their capacity to produce seeds or they produce non-viable seeds (e.g. banana, seedless grapes, rose, pineapple, etc). Vegetative propagation occurs by natural as well as by artificial methods and is very common in seedless plants. Some most common natural methods of vegetative propagation in plants are:

Natural (Vegetative Propagation)
It is done by following means:

a) **By Roots:**
Roots of some plants develop adventitious buds which grow to form new plants. e.g. Dalbergia (sheesham), Guava, Sweet potato, Dahlia, Asparagus etc.

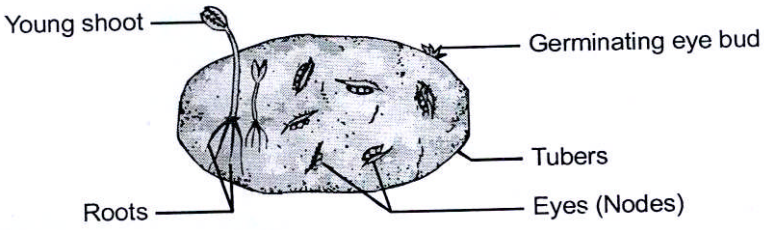


Root tuber of Dahlia

b) By Stems:

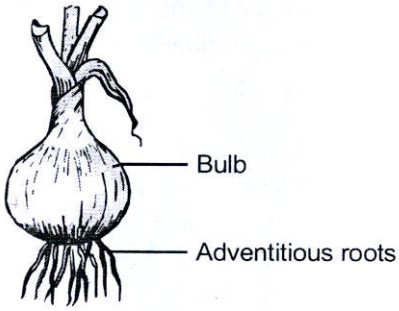
1) **Underground stem:** Different types of underground stem structures bearing a few buds take part in vegetative propagation. Some examples are given below:

i) **Tubers:** Potatoes are vegetatively propagated by tubers. These have buds or eyes over their nodes. The buds produce new plantlets when a stem tuber or a part of it having an eye is placed in the soil.



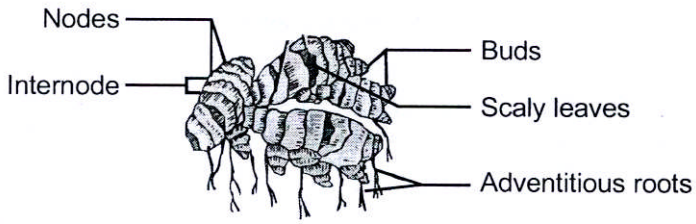
Bud in the region of node (eye) in stem tuber of potato

ii) **Bulbs:** Bulbs are underground condensed shoots which have one or more buds inside them which form new plants e.g. Onion, garlic etc.



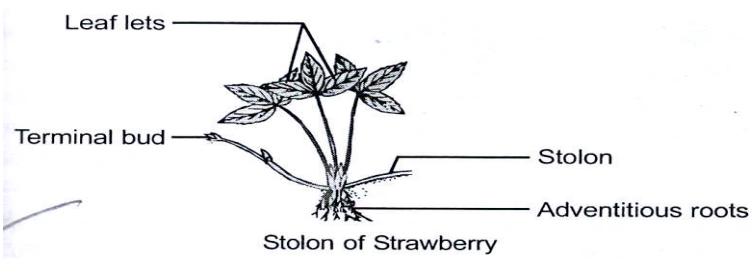
Bulb of Onion

iii) **Rhizomes**: Rhizomes are main horizontal underground stems which store food for perennation during unfavourable conditions and may take part in vegetative propagation in some plants. E.g. Banana, Ginger, Tumeric.



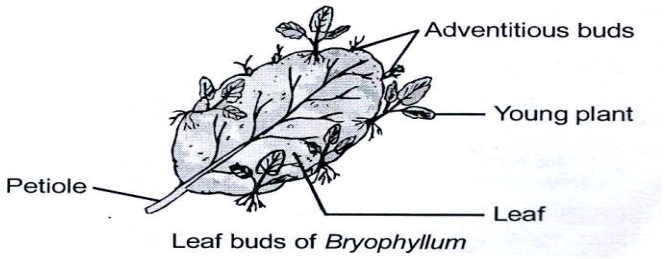
Rhizome of Ginger

iv) **Subaerial or creeping stems:-** The subaerial or creeping stem of some plants also take part in vegetative propagation. For example, stolons in strawberry. Stolons are arched horizontal branches that develop at the base of a crown and help in vegetative propagation.



Stolon of Strawberry

c) **By Leaves:** Leaves of many plants have adventitious buds and help in vegetative propagation e.g. Begonia, Bryophyllium, Saintpaulia etc. The leaf buds fall on the soil and develop into new plants.



Leaf buds of *Bryophyllum*

Artificial methods of vegetative propagation are man-made and developed by plant growers and horticulturists for commercial production of crops. Some common artificial methods are:

i) **Cutting**:- The small piece of any plant organ (stem, root or leaf) used for propagation is called cutting. Stem cuttings are most commonly employed for propagation of many horticultural plants such as grape, tea, citrus fruits, rose, sugarcane, etc. In this method, about 20-30cm long pieces of stem are planted in natural position in the wet soil. It gives off roots from the lower end and shoots buds from the aerial nodes. A cutting develops into a new plant, similar to the parent plant.

ii) **Layering:-** In layering, the roots are artificially induced on the stem branches before they are detached from the parent plant for propagation. Layering is done by two common methods:

a) **Mound layering:-** Can be induced by bending the branch to the ground and covering it with moist soil. The apical portion of this branch is left exposed to air which develops leaves. The part below the soil develops adventitious roots. The layered branch is then separated from the parent plant and it grows into an independent plant. Layering is practiced in plants like jasmine (Jasminum), Magnolia, etc.

b) **Air layering method:-** In this method, a part of the aerial branch is scarped. The scarped part is wrapped with damp mud. A polythene or plastic sheets is used to cover the mud in order to prevent water loss. Water may be sprinkled over the wrapped mud at intervals to keep it moist. After few weeks roots emerge out from the scarped part of the stem. At this stage the stem with newly developed root system is removed from the parent stem to be planted in soil. Several plants, like jasmine, strawberry, guava, lemon, china rose (Hibiscus), Bougainvillea and several others can be grown through this method.

iii) **Grafting** is a method of obtaining a superior quality plant from two different plants by taking the root system of one plant and the shoot system of another. The plant whose root system is taken is called stock while the plant whose shoot system is taken is called scion. Thus, grafting is a method in which cut stems of two plants, stock and scion, are joined in such a way that they develop into a single plant. The ends of the stock and the scion to be grafted are cut obliquely and placed face to face in such a way that the cambia of the two are in intimate contact. Then both the scion and the stock are bound firmly with tape and covered with soft wax to prevent them from infection and dehydration. After some time new cells develop in the cambia of the stock and scion. They form a close union and the buds sprout. This technique has been used in raising superior quality plants of mango, guava, pear, rubber, etc.

Advantages of vegetative propagation

- The desirable characters (traits) of the plants can be preserved through generations by vegetative reproduction.
- Seedless plants like rose, sugarcane, banana, grapes, jasmine, etc. can be grown through vegetative propagation.

- Through cutting and grafting methods, flowers and fruits can be grown in a shorter time as compared to the plants grown from seeds.
- It is a cheaper, easier and more rapid method of plant propagation.
- The plants, which do not produce viable seeds or produce very few seeds, can be reproduced by this method, for example, banana, potato, grapes, sugarcane, rose, orange, etc.
- Plants raised through vegetative propagation from a single parent are generally identical.

Limitations of vegetative propagation

There are some limitations of vegetative propagation. Some of these are:

- Plants produced by this technique possess less vigour.
- They are more prone to diseases.
- They show no genetic variations.

Tissue culture

It is a modern technique of vegetative propagation. This technique is also called micro propagation. In this technique, a small part of tissue is cut from a plant and is grown on artificial culture medium in a container containing nutrient medium under aseptic conditions. The tissue utilizes nutrients from the medium and forms an unorganized, undifferentiated mass of cells called callus. Small portion of this callus is separated and transferred to another medium containing hormones. These hormones induce differentiation and plantlets are produced. These plantlets are transplanted into the soil, which grow into mature plants. Orchids, asparagus, chrysanthemum and many other plants are now being grown by using tissue culture technique.

Advantages of Micro propagation

i) A large number of plants can be produced in relatively short span of time and space.
ii) Helps in crop improvement by producing disease-free plants.

Significance of Asexual Reproduction are as follows:

i) This type of reproduction enable organisms to reproduce without a mate.
ii) It does not require the time and energy that takes to search a mate.
iii) It results in the reproduction of large number of offspring rapidly.
iv) Like in plants, it enables to spread and colonize an area in short period of time.

v) Animals that are confined to one particular place and unable to look for a mate reproduce asexually.
vi) Stable environments with very little change are favourable for organisms to reproduce asexually.

Sexual Reproduction

It is the process of development of new individuals through the formation and fusion of male and female gametes. It is usually biparental and involves sexual individuals –male and female. The process of fusion of two different types of gametes i.e. male gamete (sperm) and female gamete (egg) is called fertilization. The events of sexual reproduction can be broadly divided into following phases:

i) **Prezygotic / gametic phase:** It involves sperm formation (spermatogenesis) in males and ovum formation (oogenesis) in females. Males and females have different reproductive organs for the production of their gametes.

ii) **Zygote phase:** It involves fusion of gametes (sperm and ovum) which results in the formation of zygote. This process is called fertilization/ syngamy.

iii) **Postzgotic phase:-** It includes events of growth and development t of the embryo and feotus from a single cell called zygote.

Sexual Reproduction in flowering plants:-

Structure of a flower

In flowering plants, all the steps of sexual reproduction occur within specialized reproductive organs called the flowers. Thus a flower may be defined as a specialized condensed reproductive shoot of flowering plants on which are inserted the essential reproductive parts.

A typical flower consists of four whorls of floral appendages attached on the receptacle. The flowers stalk is called pedicel. The tip of the pedicel is enlarged into a receptacle called thalamus. All the other floral parts are attached to the receptacle in circles or whorls. The four whorls of floral appendages are:-

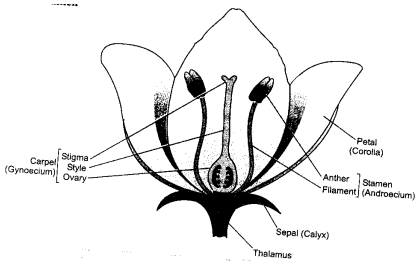
1. Calyx or sepals.
2. Corolla or petals
3. Androecium or stamen.
4. Gynoecium or carpels.

1. **Calyx or sepals:-** It is the outer most whorl of floral leaves. Sepals are green, leaf like structures. Sepals protect the flower when it is at the bud stage. The collective name for sepals is calyx.

2. **Corolla or petals**:- The next circle of appendages is that of petals. They are generally bright in colour as well as fragrant. The colour and smell help in the process of pollination. Petals are collectively called corolla.
   Calyx and corolla are non essential parts of a flower because they are not directly involved in reproduction.

3. **Androecium or stamen:-** The third whorl, inner to corolla, consists of stamens. They are the male reproductive organs of the flower. Each stamen consists of a slender stalk, the filament and a tiny bulb like structure at its tip known as anther. Usually anthers are bilobed and contain four pollen sacs. The pollen grains are made inside the pollen sac. Stamens are collectively called the androecium.

4. **Gynoecium or carpels:-** The inner most whorl at the centre is the female reproductive organ known as carpel. Each carpel has three distinct parts namely stigma, style and ovary. Ovary is the swollen basal part, which extend upwards into a stalk like style, which terminates into a lobed head, called as stigma. The ovary bears one or more ovules. The collective name for carpel is called pistil.



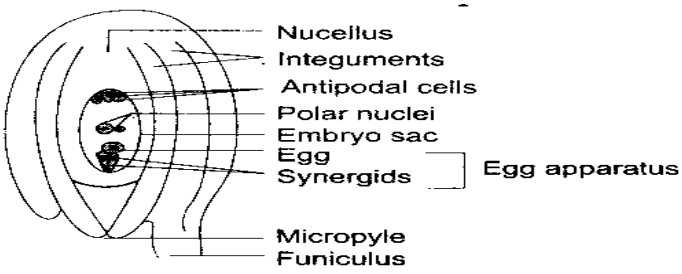
Structure of an Ovule

The ovule develops from a special tissue called the placenta, inside the ovary. The ovule is attached to the ovary wall by a stalk known as funiculus and it is surrounded by one or two protective layers called integuments.

The integuments leave a small opening called as micropyle. Within the ovule an oval shaped structure called the embryo sac is formed as a result of meiotic division.

In the embryo sac are present eight cells, which are arranged in three sets. The set of three cells at the micropylar end form the egg apparatus which comprises the egg cell and two synergids on either side of

the egg cell. The next set of three cells, at the other end of the embryo sac is called antipodal cells, remaining two in the centre fuse the form a diploid secondary nucleus or two polar nuclei.



Structure of ovule

Pollination:- The transfer and deposition of pollen grains from the anther on the stigmatic surface of the flower is termed pollination. When the pollen grains from the stamens are transferred to the stigma of the same flower, the process is termed autogamy (self-pollination). This happens in bisexual flowers such as pea, wheat, etc. When the pollen grains are transferred from one flower to another flower of the same plant, the method is termed geitonogamy which is again a type of self-pollination. Cross-pollination occurs between flowers of two different plants of the same species. It is termed allogamy.

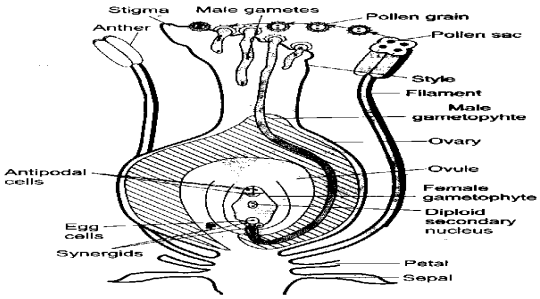
Pollinating Agencies:- The different agents that help in the process of pollination are:-
Wind, water, insects, birds, bats, bees and butterflies, humans etc.

i) When pollination is done by wind, 'it is called as anemophily.
ii) When pollination is done by water, it is called as hydrophily.
iii) When pollination is done by insects, it is called as entomophily.
iv) When pollination is done by bats, it is called as chiropterophily.
v) When pollination is done by birds, it is called as ornithophily.
vi) When pollination is done by bees and butterflies, it is called as psychophily.
vii) When pollination is done by humans, it is called as anthrophily.

Fertilization: Pollination results in the deposition of related pollen grains over the receptive stigma of the carpel. They absorb water and swell up.
Each pollen grain contains two nuclei, one is the generative nucleus and the other, the vegetative nucleus. A pollen tube emerges from the pollen grain and penerates through the style. The pollen tube bears the vegetative nucleus at its tip.
The generative nucleus divides into two male nuclei. The pollen tube eventually enters the embryo sac through the micropyle and discharges the two male nuclei (gametes) into it. The vegetative nucleus then disintegrates.
Inside the embryo sac, one of the male nuclei fuses with the egg cell and forms a diploid zygote. The process is called as syngamy or generative fertilization. The other male nucleus fuses with the two polar nuclei situated at the centre of the embryo sac to form the triploid primary endosperm nucleus. This fusion is termed triple fusion or vegetative fertilization by virtue of the union of three nuclei. Fertilization occurs twice in the embryo
sac. One between the egg cell and one of the male nuclei, and the second between the two polar nuclei and the second male nucleus. So it is termed double fertilization. The summary of double fertilization is given below.

i) Egg cell (haploid) + 1^{st} male nucleus = Zygote (diploid)
ii) Two polar nuclei (diploid) + 2^{nd} male nucleus (haploid) = Endosperm (triploid)

The endosperm tissue is used as food by the developing embryo. Following fertilization the petals, stamens, style and stigma fall off. However, the sepals dry up and hold onto the developing ovary. The ovary grows rapidly and forms a fruit and the ovule develops into a seed. The seed contains a potential tiny plant that is the embryo. The embryo has a root-like structure called the radicle and a shoot-like structure, the plumule. There may be one or two fleshy structures known as cotyledons attached to the embryo, in between the plumule and radicle. Cotyledons contain reserve food for the developing embryo.



Sexual Reproduction in Animals

In human beings, reproduction involves both the male and female sexes. The new individual or offspring develops from the zygote by the union of two specialized cells called gametes. One of the gamete is active, smaller in size and without any reserve food. This is the male gamete and is called sperm.

Male Reproductive System

Human male reproductive system consists of the following organs:-

1. Testes
2. Scrotum
3. Vas Deferens
4. Urethra
5. Penis

1. **Testes:-** Human male possesses two testes, which are the primary reproductive organs, lying outside the abdominal cavity. The two testes are the male gonads, which are the sites where male gametes i.e. sperms are made. Testes contain coiled masses of tubes called semineferous tubules. These tubes are responsible for producing sperm cells. Walls of semineferous tubules contain elongated sertoli cells and rounded interstitial or leydig's cells which secretes male sex hormone called testosterone. The testis of male produces sperms from puberty onwards, throughout his life. Approximately 300 million sperms are produced every day.

2. **Scrotum:-** It is pouch of skin that hangs between the legs. It is divided internally into right and left scrotal sacs by a muscular partition. The two testes lie in respective scrotal sacs. Scrotal sacs act as thermoregulator and provides an optimal temperature for the formation of sperms. The sperms develop at a temperature 1-3^{0}C lower than the normal body temperature. The life of the sperms is greatly reduced if the temperature is higher.

3. **Vas Deferens/ epididymis**:- These are long coiled tubes that rest on the backside of each testicle. These transport and store sperms. It is a straight tube, about 40cm long, which carries sperms to the seminal vesicles. Sperms are stored temporarily in the seminal vesicle, where mucus and a watery alkaline fluid containing the sugar fructose, mix with the sperms.

4. **Ejaculatory duct**:- These are a pair of ducts which are formed by the fusion of vasdeferens and seminal vesicles. The ejaculatory duct opens into urethra.

5. **Urethra:-** It is about 20cm long tube that arises from the urinary bladder to carry urine. It runs through the penis and opens to the outside through male genital pore. The contents of the two seminal vesicles, i.e. sperms from vas difference also join the urethra. Thus urethra carries urine from the bladder, as well as sperms from vasa differentia, through the penis.

6. **Penis:-** It is a long and thick muscular organ made up of mostly erectile tissue. The tip of penis consists of a soft and highly sensitive glans penis, which is covered by a loose, retractable fold of skin, called foreskin. At the time of sexual excitement, the erectile tissue gets filled with blood causing the penis to become erect. It is inserted into the vagina of the female where sperms are ejaculated for the purpose of reproduction.
In human males, there is only one opening for the urine and sperms to pass out of body.

Accessory male glands

Seminal vesicle:- These are two in number. The secretion of seminal vesicle forms the major part of the seminal fluid. The sperms become active in the secretion of seminal vesicle. It secretes mucus and a watery alkaline fluid that contains fructose. Each seminal vesicle releases its contents into ejaculatory duct during ejaculation.

Prostate gland:- This gland surrounds the urethra. The secretion of the gland is thin and milky and is directly discharged into the urethra.

Cowper's gland / Bulbourethral gland:- These are two in number and are attached to urethra, a little below the prostate gland. It secretes mucus and an alkaline fluid into the urethra. The secretion of the Cowper's gland and the prostate gland make an environment in the urethra suitable for sperm survival.

Structure of sperm:-

The structure of mature sperm is as under:-
There are three distinct regions: a head, a middle piece and a tail. The head is flattened and oval in shape. It contains a nucleus and is capped by an enzyme-filled structure called the acrosome. Acrosome facililitates the
entry of the sperm nucleus into the egg cell at fertilization. The middle piece of the sperm has several mitochondria for energy production. The tail helps in propulsion through the female genital tract. The entire development of the sperm takes about 72 days. In man, spermatogenesis (the process of sperm formation) is
continuous but in other mammals it may be seasonal and restricted to certain breeding periods. Temperatures above 40^0C inhibit spermatogenesis (for this reason the testes are located outside the body).

Female Reproductive System

Female reproductive system is more complex as compared to that of males. The complexity of sexual structures in females is due to the fact that it accepts sperms from male, supports their movement upto egg, fertilization and subsequent post fertilization changes. Female reproductive system consists of the the following organs:

1. Ovaries
2. Fallopian tubes (Oviducts)
3. Uterus
4. Vagina
5. External genitalia

1. **Ovaries:-** Each human female contains two almond shaped ovaries located in the lower part of abdominal cavity near the kidney. Each ovary is connected by a ligament to the uterus. The ovaries are primary sex organs (or female gonads), which perform the dual function-(a) production of female gametes (eggs or ova) and (b) Secretion of female sex hormones (estrogen and progesterone). Each
ovary is composed of ovarian follicles, at various stages of development. Each follicle contains a large ovum surrounded by many layers of follicle cells. The production of ova starts at the age of puberty. Usually, one ovum is produced every month during the fertile years of a woman. After menopause, the ovaries become small and lose follicle.

2. **Fallopian tubes (Oviducts):-** A fallopian tube is about 10-12cm long muscular tube which carries egg from the ovary to the uterus and also provides the appropriate environment for its fertilization. The funnel-shaped opening end of each fallopian tube lies near the posterior ends of each ovary. It bears finger like projections called fimbriae which are attached to ovary by ligaments. The other ends of the long convoluted tubes open into the uterus.

3. **Uterus:-** The uterus is a large, inverted pear-shaped, muscular structure that lies behind the bladder and remains attached to body wall by ligaments. The uterus has a thick muscular wall, the myometrium and a nutritive and highly vascular inner lining the endometrum. If fertilization takes place, the embryo gets attached to the wall of uterus and grows there until birth. The narrower lower part of uterus is called cervix which leads into vagina.

4. **Vagina:-** This is a muscular tube about 7-10cm long whose walls contain elastic tissue. It is well adapted to receive the male's penis during copulation. The vagina is also called "birth canal", as it allows passage of the baby at the time of child birth. The inner lining of the vagina contains secretary gland which produces lubricating and nutritive fluid during sexual arousal. Until puberty, the vagina is partially or almost completely closed by a thin membrane, the hymen, which perforates to allow the flow of menstrual blood.

5. **External genitalia:-** Vagina opens externally into vulva. At its anterior end is the clitoris, a small erectile organ similar to the male penis. Two folds of skin, the labia majora and the labia minora, encloses the vulva at the entrance to the vagina.

Menstrual cycle:-

The cycle of events taking place in female reproductive organs, i.e. in ovaries and uterus, under the control of sex hormones, in every 28 days and marked by bleeding or menstrual flow, is called menstrual cycle (Sexual cycle in Human females).

Each menstrual cycle occurs about every 28 days and lasts 4-5 days. Menstruation occurs 12 to 14 days after an ovum is released from the ovary (ovulation), about once in four weeks. The periodicity of the cycle varies with different individuals. After fertilization, menstruation ceases, and is the first indication of pregnancy. The menstrual cycle is divided into four phases, with major events occurring in each phase.

Menstrual cycle in different stages is described below:-

Stage 1. Menstrual or Menstrual flow:- It lasts for 3 to 5 days. During this stage, the uterine lining the endometrium degenerates causing bleeding. The sloughed off endometrium, the blood and the unfertilized ovum then passes out as menstrual flow.

Stage 2. Post menstrual stage or proliferative phase:- After menstrual flow, the endometrium reappear and the uterus regains its normal structure and size. The follicle grows and matures in the ovary. This stage continues for about 5-13 days.

Stage 3. Ovulation:- Ovulation takes place on about the fourteenth day of the cycle, the follicle bursts releasing ovum. The ovum is picked up by the fimbriae of fallopian tube.

Stage 4. Premenstrual or Progestational stage or luteal or secretory stage:- At this stage the corpus luteum develops from the ruptured follicle and persists over the next 12 to 14 days. The ovum moves to the uterus by ciliary & muscular action in the fallopian tube, if the ovum is fertilized, corpus luteum grow & secretes the hormones mainly. Progesteron prevents ovulation, if the ovum is not fertilized corpus luteum degenerates towards the end of the menstrual cycle.

The menstrual cycle ends in pregnancy or restarts after the removal of the endometrial lining in another menstrual flow. The menstrual cycle and menstruation are permanently discontinued at an age of 45-50 years in females. This is called menopause. The ability to reproduce is lost in females after menopause.

Fertilization:

Internal fertilization is an essential part of reproduction in human beings. This is achieved by copulation (or mating). During copulation, the human male inserts his penis into the vagina of the female and releases gametes (sperms) inside the genital tract. This is called ejaculation. At a time, approximately $3cm^3$ of semen (sperm- bearing fluid produced by testes and accessory glands) is discharged during ejaculation, of which about 10% are sperms. They are millions in number. The sperms are deposited at the top of the vagina close to the

cervix of uterus. The sperms are highly active and mobile. They travel from here upward through the uterus to the top of fallopian tube within five minutes. There they spend several hours and undergo many chemical changes. Finally, only one sperm fertilizes the ovum in the fallopian tube. The fusion of sperm nucleus with the egg nucleus to form a diploid zygote is called fertilization. Fertilization occurs only when copulation occurs during ovulation period (i.e. middle of the menstrual cycle). It is marked by the stoppage of menstrual flow. Thus, stoppage of menstruation (the 'period') is the earliest sign of pregnancy.

Post fertilization changes:

Immediately after conception (i.e., fusion of male and female gametes to form a zygote), the embryonic development begins in the fallopian tube. This stage marks the beginning of pregnancy. As the zygote moves from the fallopian tube down towards the uterus, it starts dividing by successive nuclear and cell divisions resulting in the formation of a small multicellular ball of cells by the process, called cleavage. The young multicellular embryo, formed as a result of cleavage, is now called blastocyst. The blastocyst gets embedded into the thickened inner wall of the uterus. The close attachment of the blastocyst to the uterine wall is called implantation. It takes place about seven days after fertilization.

Implantation is followed by a number of development changes in the blastula, as well as, in the wall of uterus. These changes include the formation of different embryonic layes (ectoderm, mesoderm and endoderm) and successive development of youth foetus (embryo). The first organs, formed in developing foetus, are neural tube and spinal cord. These organs begin to develop in the third week. Subsequently, a special umbilical cord develops in the fourth week which establishes an intimate connection between the foetal membrane and the uterine wall, called placenta. In the placenta, the foetal blood comes very close to the maternal blood. Here the exchange of materials between the mother's blood and the blood of foetus take place. The foetus gets nutrients, water, oxygen, minerals, vitamins, etc. from the maternal blood and gives off wastes, carbon dioxide, urea, etc. Thus, the placenta serves as the nutritive, respiratory and excretory organ of the foetus.

The complete development of foetus, from the initial stage of conception till the birth of the young one, is called gestation. It is also termed pregnancy. Gestation is completed in about 280 days or 40 weeks from the first day of the menstruation. Gestation is followed by parturition. Parturition is the act of expelling the full-term young one from the mother's uterus at the end of gestation. The new born child, after 280 days of gestation, weighs about 3.5kg and measures about 240 mm from head to bottom.

Reproductive health and sexually transmitted diseases

The reproductive life of human begins, at puberty and continues throughout life in males and upto menopause in females. Like physical fitness, mental, social fitness, human beings need fitness of reproductive life. This is called reproductive health. It includes such aspects that ensure a responsible, safe and satisfying reproductive life. It is our responsibility and the responsibility of nation to provide necessary information and general awareness regarding reproductive health. Everyone mush known that:-

1) Marriage and child bearing during more mature stages of life are important for reproductive health of society.
2) Secondary school education which is lagging behind in many parts must be enhanced.
3) Complications during pregnancy and child birth and unsafe abortion are the causes of death of women. All these aspects of reproductive health have been considered by W.H.O and National population policy national policy of India.

The infectious (communicable) diseases which are spread from an infected to a healthy person by sexual contact are called S.T.D's(Sexually transmitted diseases).

The common among them are:-

v) **Gonorrhea:-** is caused by bacterium (Nisseria Gonorrhea). The victim feeling burning sensation and pain during urination. It causes inflammation of mucus membranes of primogenital tract, throat, eyes. The disease is easily curable by antibiotics.

vi) **Syphilis:-** is caused by a bacterium (Troponema Pallidum). The disease is the chronic illness which affects mucus membrane of genitals, rectum and oral regions and causes lesion. It is easily cured by antibiotics.

vii) **AIDS**:- Is caused by virus HIV. It is the fast spreading incurable disease which weakness the body's immune system. The main symptoms are:-

i) Damage to brain.
ii) Unexplained fever
iii) loss of appetite
iv) Loss of weight
v) Night sweats
vi) Shortness of breath
vii) Severe weakness

It is transmitted only by the contact of infected cells containing blood of patient with the blood of healthy person like use of contaminated needles to inject drug or vaccine, use of contaminated razors for shaving transfusion of blood and blood products etc.

Birth control or Contraception.

The methods or devices of birth control which deliberately prevent fertilization are referred to as contraception.

1. Barier methods.
2. Chemical methods
3. Intrauterine contraception device (IUCD)
4. Surgical methods

These methods are as follows:-

2. Barrier method:

b) **Condoms:-** These are thin, strong rubber sheaths used by man to cover the erect penis. It is simple but effective and widely used contraceptive that has no side effect.

c) **Femidon:-** It is not a common contraceptive method. A femidon is a thin rubber or polyurethane tube which fits inside vagina. It is used by female just before starting coital activities.

d) **Diaphragm**:- It is flexible rubber/ plastic cover that it is fitted over the cervix in the female's vagina which checks the entry of sperms into the uterus.

Chemical methods:- These chemicals adhere to the mucous membrane and immobilizes and kill the sperm:

a) Oral pills are also used to check ovulation. These are mainly hormonal preparations and contain estrogen and progesterone. These prevent development of egg and ovulation by inhibiting secretion
of FSH. The oral pills act on hypothalamus, pituitary and the ovaries. They are called oral contraceptives (OCS).

b) Vaginal pills are drugs which contains spermicidal preperations. They are used before copulation by women.

Intrauterine contraceptive device (IUCD):- These are contraceptive devices made of copper plastic or stainless steel. A copper – T is inserted into uterus by a practicing doctor or a skilled nurse and left in place. It prevents implantation in the uterus.

Natural method:- These method includes abstinence, rhythm method (avoid copulation around the time of ovulation) and coitus interrupts (with drawal of penis before ejaculation)

Surgical method:- Surgical method are safe in the long run but they may cause infection and other problems if not done properly. These methods include:

a) **Vasectomy: -** This a small surgical operation performed in males. It involves removal of a small portion of the sperm duct (or vas deferens) by surgical operation. The two cut ends are then ligated (tied) with threads. This prevent the sperms from coming out.

b) **Tubectomy:-** This is a surgical operation performed in females. It involves removal of a small portion of the fallopian tubes by surgical operation. The cuts are then ligated with threads. It prevents the egg (ovum) to enter the fallopian tube.

Medical Termination of Pregnancy (MTP): Abortion is done to end the pregnancy. Surgery can also be used for removing unwanted pregnancies. In many cases, it is misused by people who do not want a particular child, as in the case of illegal sex-selective abortion of female fetuses.

Placenta and its functions.

Placenta is a temporary organ formed in the mammals only and is the only organ in animals formed of the tissues derived from two different individuals, the foetus and the mother to permit the exchange of materials between the two.

The placenta has two parts. The part contributed by the foetus is called the foetal placenta; and the part shared by the mother i.e. part of uterine wall is termed the maternal placenta.

Functions of placenta:-

1. **Nutritive organ**:- food material passes from the mother's blood into the foetal blood through the placenta.
2. **Digestive organ:-** The placenta digests (break down) proteins before passing them into the foetal blood.
3. **Respiratory organ:-** Oxygen diffuses from the maternal blood into the foetal blood through the placenta. Carbon dioxide diffuses from the foetal blood into the maternal blood also through the placenta for elimination by the mother's lungs.

4. **Excretory organ:-** Nitrogenous wastes, such as urea pass from the foetal blood into the maternal blood via placenta for elimination by mothers kidney.
5. **Endocrine organ:-** Placenta secretes human chronic gonadotrophin (HCG) oestrogens, progesterone and human placental lactogen.
6. **Storage organ:-** The placenta stores glycogen for the foetus before liver is formed.

- **Puberty, changes at puberty and secondary sexual characters:**

Puberty:- The age at which the sex hormones and gametes begin to be produced and boys and girls become sexually mature. Generally boys attain puberty at the age of 14-15 years while girls reach puberty at a comparatively lower age of 11-12 years.

Changes at puberty
The following changes start taking place in the body of boys and girls

1. **Increase in height:-** There is a sudden increase in the height of both boys and girls during puberty. This occurs due to the increase in the length of arms and legs. The rate of growth in height varies from person to person. Some may grow rapidly at the start of puberty and then slow down whereas others may grow gradually.

   The height of an individual depends on the genes which are inherited from parents. During growth period one should take nutritive food for the proper growth of muscles, bones and other parts of the body.

2. **Change in body shape:-** The change occurring in adolescent boys and girls is different. In girls pubic region widens and limbs become broader. Deposition of fat takes place around the hips, face and shoulders. In boys, shoulders become broader and the body muscles grow more than that of girls.

3. **Change in voice:-** At puberty, the voice box begins to grow. The larynx in boys is larger than that in girls. The voice box can be seen as the Adam's apple in their throat. In girls, it is hardly visible because of their small size.
   In boys, voice becomes deep and harsh whereas girls have high pitched voice.

4. **Increased activity of sweat and sebaceous glands:-** The secretion of sweat glands and sebaceous glands (oil glands) increases during puberty. This causes acne and pimples on the face of boys and girls at this time.

5. **Development of sex organs:-** The reproductive organs in boys and girls become fully functional at puberty.
   In boys, the male sex organs like testes and penis develop completely. The testes start producing sperms.
   In girls, the ovary enlarges and eggs begin to mature. Ovaries start releasing matured eggs. Only one egg is released per month.

6. **Production of hormones:-** At puberty testes and ovaries start producing sex hormones. Testes produce the male sex hormone called testosterone and the ovaries produce the female sex hormone called estrogen. The sex hormones play an important role in the process of reproduction and in the development of secondary sexual characters.

7. **Reaching mental, intellectual and emotional maturity:-** Adolescence to a period of change in a person's way of thinking. They become more independent and self conscious. Intellectual development takes place and they spend considerable time on thinking, planning, analyzing, evaluating, exchanging views and ideas with others. They need the company of friends and get attracted towards opposite sex.
During Adolescence stage, young people undergo a period of emotional changes. They may feel depressed and have mood swings and low confidence. They may experience various moods such as being happy, sad, angry, excited or irritated. They think they need a greater degree of freedom, independence and privacy. These are the major causes of mental stress and they start feeling insecure.

Secondary Sexual Characters in Humans:
There are two types of sexual characters in humans:
1) Primary sexual characters 2) Secondary sexual characters

1) **Primary sexual characters:-** Are those characters which are present at birth. These include internal and external sex organs which are present in babies at the time of their birth. The primary sexual characters in males are testes, penis etc and the primary sexual characters in females are ovaries, oviducts, uterus, vagina. The primary sexual characters are directly involved in reproduction.

Secondary Sexual Characters:-
Secondary sexual characters are controlled by hormones and distinguish between sexually matured males and females, but are not directly involved in reproduction. In secondary sexual characteristics the body parts develop special features which make it easier to distinguish boy from a girl. E,g, growth of facial hair in boys and development of breasts in girls are the secondary sexual characters which help to distinguish a girl from a boy.
The secondary sexual characters start developing at the time of puberty and continue to develop through the period of adolescence.

The main secondary sexual characters in males are as follows:
- Facial hairs such as beards and mustaches develop.
- Hairs develop under the armpits, on chest and in the pubic region.
- Voice becomes deeper
- Muscles develop and shoulders become broader.
- Increase in weight.
- Adam's Apple develops in front of throat.
  The secondary sexual characteristics in boys/ males are produced by the male sex hormone called testosterone.

The main secondary sexual characters in females are as follows:-
- Development and enlargement of breasts.
- Hairs develop under arm pits, and in the pubic region.
- Hips become broader and become more curved and prominent.
- Pubic region widens.
- Initiation of menstrual cycle.
- Deposition of fat on face, shoulders and around hips.
- High pitched voice/ shrill voice.

The secondary sexual characters in girls are produced by a female sex hormone called estrogen.

Textual Questions

Q#1 What is the importance of DNA copying in reproduction?

Ans. It maintains the body design features in different generations of the species. It also produces variations due to mistakes during copying. Such variations are useful for the survival of species over time.

Q#2 Why is variation beneficial to the species but not necessary for the individual?

Ans. A species comprises a large number of individuals. Each individual may have specific type of variations of different nature. Individually these variations may not be of much benefit to a particular organism but when specie faces a drastically altered condition, some of its members may survive because of possessing such variations which are capable to face the new situation. In this way, variations save the species from becoming extinct and promotes its survival for a long time.

Q#3 Why is DNA copying an essential part of the process of reproduction?

Ans. The process of reproduction results in the production of offsprings which are exactly similar to parents. The exact blue print of body design is inherited in the offsprings due to DNA copying in parent cell during reproduction. Thus, DNA copying is an essential part of the process of reproduction.

Q#4 How does binary fission differ multiple fission?

Ans.

Binary fission	Multiple fission
1. It occurs during favourable conditions. 2. A single organism splits to form two identical organisms. 3. Nucleus divides only once during this form of reproduction. 4. Protective covering is not formed around organism.	1. It occurs when an organism faces unfavourable environmental conditions. 2. During this process many new organisms are formed from a single one. 3. Nucleus divides repeatedly to form large number of nuclei. 4. Protective covering or cyst is formed around the organism during multiple fission.

Q#5 How will an organism be benefit if it reproduces through spores?

Ans. (a) It is a simpler and faster mode of reproduction.

b) Spores being small and light get easily dispersed through wind, water and animals. Thus, dispersal of organism becomes easier.

c) Spores bear thick resistant covering to enable them to survive even in unfavourable conditions.

Q#6 Can you think of reasons why more complex organisms cannot give rise to new individuals through regeneration?

Ans. Complex organisms have specialized cells that are organized as tissues and tissues are organized into organs which then have to be placed at defined positions in the body. In such a carefully organized situation, regeneration would be impractical.

Q#7 Why is vegetative propagation practiced for growing certain types of plants?

Ans. a) To preserve characters of the plants through successive generations.

b) Seedless plants can be grown through vegetative reproduction.
c) Through cutting and grafting methods flowers and fruits can be grown in a shorter time.
d) It is a cheaper, easier and more rapid method of plant propagation.

Q#8 How is the process of pollination differ from fertilization?

Ans. Pollination is the process of transfer of pollen grains from the anther of a flower to the stigma of the same flower or another, whereas fertilization is a post pollination phase during which fusion of male and female gametes occurs to form zygote.

Q#9 How are the modes of reproduction different in unicellular and multicellular organisms?

Ans. In unicellular organism's asexual mode of reproduction like fission, fragmentation and sporulation are the main source of producing new organisms, however some forms exhibit primitive type of sexual reproduction like conjugation in bacteria.

In multicellular organisms, the primary source of reproduction is through sexual means, although in relatively simpler multicellular forms reproduction occurs by budding, regeneration, spore formation and vegetative propagation.

Q#10 What is the role of the seminal vesicles and the prostate gland?

Ans. Seminal vesicle is a male accessory reproductive gland where sperms are stored temporarily. Here, the mucus and a watery alkaline fluid containing the sugar fructose mix with the sperms. Prostate gland secretes alkaline fluid comprising upto a third of semen volume. It affects the vaginal pH so that sperms move smoothly inside the vagina.

Q#11 What are the functions performed by the testes in human beings?

Ans. Testes are the primary sexual organs of males, which perform the following functions.

- Sperms are formed inside the seminiferous tubules of testes.
- Leydig cells (interstitial cells) of testes produce male sex hormone- testosterone. Testosterone controls the normal growth of genital organs and helps in the development of secondary sexual characters of males.

Q#12 Why does menstruation occur?

Ans. The endometrium of uterus of a female becomes ready to receive foetus at every twenty eight day's interval. If fertilization does not occur and embryo is not formed, endometrium breaks down and bleeding occurs. This process is called menstruation. So, menstruation occurs as a consequence of non-fertilization of egg.

Q#13 What are the advantages of sexual reproduction over asexual reproduction?

Ans. During the process of sexual reproduction gametes are formed which involve DNA copying mechanism, crossing over and fusion of gametes from biparental sources. Error in DNA copying mechanism and crossing over produce different forms of variations in different individuals. Then the gametes of two individuals with different types of variations combine, they create a new combination of variants. Such variations not only enhance the survival chances for a species but also play an important role in evolution.

During asexual reproduction variations are not produced or even if they appear they are very slow, mainly through mutation, thus are of no use in evolution and survival of species.

Q#14 What are the different methods of contraception?

Ans. The different methods of contraception are:-

1. Barrier methods.
2. Chemical methods

3. Intrauterine contraception device (IUCD)
4. Surgical methods
5. Natural method

Q#15 How does reproduction help in providing stability to populations of species?

Ans. Reproduction is the only means to ensure the continuity of a species. By reproduction, organisms produce a large number of new individuals out of which several get perished and only some survive. These surviving organisms replace the naturally dying organisms of the population. Hence, the population as a whole is not affected and remains stable.

Q#16 Multiple Choice Questions.

a) Asexual reproduction takes place through budding in ;

i) Amoeba ii) Yeast iii) Plasmodium iv) Leishmania

Ans. Yeast

b) Which of the following is not a part of the female reproductive system in human beings?

i) Ovary ii) Uterus iii) Vas deferens iv) Fallopian tube

Ans. Vas deferens

c) The anther contains;

i) Sepals ii) Ovules iii) Carpel iv) Pollen grains

Ans. Pollen grains

Topic: Agriculture

Chapter 4

Q) Answer the following questions in 30 words

i. Name one important beverage crop and specify the geographical conditions required for its growth.

Ans. Tea is an important beverage crop. To grow well, the tea plant needs tropical or sub tropical climates, and deep and fertile well-drained soil which is rich in humus and organic matter.

(i) Name one staple crop of India and the regions where it is produced.

Ans. Rice is a staple food crop of India. It grows in the plains of north and north-east India, coastal areas and the deltaic regions.

(ii) Enlist the various institutional reform programmes introduced by the government in the interest of farmers.

Ans.The various institutional reform programmes introduced by the government for the benefit of farmers are - Minimum Support Price policy, provision for crop insurance, subsidy on agricultural inputs and resources such as power and fertilizers, Grameen banks, Kissan Credit Card and Personal Accident Insurance Scheme.

(iv) The land under cultivation has got reduced day by day. Can you imagine its consequences?

Ans.A declining area of land under cultivation coupled with increasing population can lead to serious foodgrain shortages. This would in turn increase imports of foodgrains, thereby causing the economy to reel under huge debts.

Q. Answer the following questions in about 120 words.

(i) Suggest the initiative taken by the government to ensure the increase in agricultural production.

Ans. To ensure increase in agricultural production, the government prioritised collectivization, consolidation of holdings, cooperation and abolition of zamindari

system. 'Land reform' was the main focus of the First Five Year Plans. In the 1960s and 1970s, agricultural reforms were the order of the day. The Green Revolution and the White Revolution (Operation Flood) were aimed at improving Indian agricultural productivity. During the 1980s!and 1990s, a comprehensive land development programme was initiated. Under this, various technical and Institutional reforms were introduced by the government for the benefit of farmers, e.g., Minimum Support Price policy, provision for crop insurance, subsidy on agricultural inputs and resources such as power and fertilizers, Grameen banks, Kissan Credit Card, Personal Accident Insurance Scheme, and special weather bulletins and agricultural programmes like 'KrishiDarshan' on national television.

(ii) Describe the impact of globalization on Indian agriculture.

The impact of globalization on Indian agriculture has been felt since colonial times. Raw cotton and spices were important export items from India. In 1917, Indian fanners revolted in Champaran against being forced to grow indigo in place of food-grains, in order to supply dyeto Britain's flourishing textile industry. Thus, globalization has had its boons and banes for Indian agriculture.

Post liberalization, Indian farmers face new challenges in the form of competition from highly subsidized agriculture of developed nations. This prompts the need for making Indian agriculture successful and profitable by improving the conditions of small and marginal farmers, countering the negative effects of Green Revolution, developing and promoting organic farming, and diversifying cropping pattern from cereals to high-value crops.

(iii) Describe the geographical conditions required for the growth of rice.

Ans. Rice is a kharif crop grown in the plains of north and north-eastern India, coastal areas and deltaic regions. It requires high temperatures (above 25°C) and high humidity with annual rainfall above 100 cm. In areas with less rainfall, it grows with the help of irrigation via canals and tube-wells.

TOPIC 3: DEMOCRACY AND DIVERSITY

1. *Discuss three factors that determine the outcomes of politics of social divisions.*

A. The three factors that determine the outcomes of politics of social divisions are listed as under:

i) The people's perception of the identities: The outcome depends on how people perceive their identities. If they see themselves as having unique and exclusive identities, it would be very difficult to integrate different groups into one compact group. In other words, as long as the Irish people see themselves as either Catholics or Protestants and not as citizens of Ireland, their differences would be difficult to settle.

ii) Raising of demands by political leaders: The second observation about politics of social division concerns how political parties led by leaders create friction between different ethno-religious groups, just to further their own political ambitions. If the interests of the .political leaders do not coincide with the interests of the groups for which they are fighting, the things may get even more complicated. And if the leaders of different groups raise their demands within the constitutional framework, it would be easy for them to reconcile the interests of the different social groups. Thus, in Sri Lanka, the demand for "only Sinhala" at the cost of the interests of Tamil is, quite understandably, an indigestible demand. As long such demands persist, peaceful co-existence between the two communities can never come about.

iii) Reaction of the government to the demands of different groups: The third observation is related to how government reacts to the demands raised by the different social groups. Take the example of Sri Lanka in the light of the Belgian experience; if the government responds positively to the demands of different minority groups for autonomy in power sharing, then chances of violent conflicts would be minimized. But if government! tries to suppress such demands, the end result would

be quite the opposite, i.e. violence.

2. *When does a social difference become a social division?*

A. Social division takes place when some social difference overlaps with other differences. In other words, a social difference becomes a social division when it coincides with other social differences, which in turn serve to heighten the said difference. For example: in Northern Ireland, religion and social class (social status) overlap each other. Northern Ireland is predominantly a Christian country with two segments- Catholics and Protestants. The catholic segment is relatively inferior in social status and faces social discrimination, while Protestants are relatively wealthier and enjoy higher social status.

3. *How do social divisions affect politics? Give two examples.*

A. *Negative effect*: The politics of a country cannot remain untouched by social divisions. The combination of social divisions and politics can be really dangerous. A democracy involves competition among various political parties. Their competition tends to divide any society. If they start competing in terms of some existing social divisions, it can make social divisions into political divisions and lead to conflict, violence or even disintegration of a: country. An example of this is the political competition along with religious and ethnic lines led to the disintegration of Yugoslavia into six independent countries.
Positive effect: The combination of social divisions and politics is not always negative. In a democracy, it is natural that political parties would talk about these divisions, make promises to different communities, look after the representation of various communities and make policies to redress the grievances of the disadvantaged communities. For example, the system of reservation of seats in the Indian Legislatures for the socially disadvantaged class has allowed such social groups to have an adequate representation in the decision making process.

Merits of democracy:

1. *Change in government without violence*: Democracy can provide for a change in the government without violence. In democracy, power is transferred from one party to another by means of elections. The choice of the citizens of a nation determines its ruling authority. The government runs on people's support. Thus, democracy allows for a stable form of government.

2. *Prevents monopoly*: The government is bound by an election term (after which it has to compete with other parties to regain authority.. This system prevents monopoly of the ruling authority. The ruling party cannot remain in authority after completing its term, unless re-elected by the people.

3. Creates sense of participation: Another important advantage of democracy is that the people gain a sense of participation in the process of choosing their government and in making policy decisions. They get the opportunity to voice their opinions by means of electoral votes. This inculcates a sense of belonging towards society and their nation.

4. Promotes equality: Democracy is generally based on the concept of equality. This means that all members of a country or a state are equal in the eyes of law. Every individual has the right to enjoy and experience equal economic, political and social rights and the state is not allowed to discriminate citizens on the basis of caste, religion, property etc.

5. Responsible to the people: A democratic government cannot become tyrannical or arbitrary as a monarchy or an aristocracy can. It is subject to regular and' constant criticism. It alone provides responsibility of the rulers.

The opposition parties keep a check and watch upon the ruling party. The latter has always to explain its policy and convince the electorate of its soundness. All decisions are to be arrived at by discussions, argument and persuasion. The party in power can retain power only by getting the

sanction of popular support which can be possible only if it serves popular interests.

Q2. Write a short note on origin and nature of social differences.

Ans. The social differences are mostly based on accident of birth. Normally we do not choose to belong to our community. We belong to it simply because we are born into it. Further, there are certain organic differences between different groups in the society. For example, physical traits like proportionate height and weight and complexion. These are due to genetic differences based on heredity and again are accidental.However, not all social differences are based on birth criteria. Rather, these are based on individual or group preferences or choices. For example, some people are atheists. They do not believe in God and any religion. On the other hand, some people prefer to follow the ideals of a religion other than the religion in which they were born. Thus, all these circumstances lead to the formation of social groups that are based on individual choices and interests. However, the various aspects of social differences do not result in the formation of Social divisions. Social differences have both disintegrating and uniting features as they often separate similar people from one another while uniting very different people committed to social cause or ideal. For example, Carlos and Smith were similar in one way as both were African- American and thus, different from the Norman who was white. But all the three were similar in the sense that they were all sportspersons who supported communal harmony and opposed racial discrimination. It is fairly common for people belonging to the same religion to feel that they do not belong to the same community because their caste or sect is very different. Thus we all have more than one identity and can belong to more than one social group. We have different identities in different contexts.

Topic 2: Federalism

Point out one feature in the practice of federalism in India that is similar to and one feature that is different from that of Belgium.

A) *Feature of Indian Federalism similar to Belgiu Model:* In India as well as Belgium, is a constitutional scheme of division of powers between the central and regional governments

B) *Feature of Indian Federalism different from Begium model:* In India there is a distribution of powers between the state and the central governments, while as in Belgium there is a distribution of powers between the three governments i.e. Central government, Regional government and Community government.

C) *Standardisation* : The Sinhala government followed preferential policies that favoured Sinhala applicants for university positions and government jobs.

D) *Religious bias* : A new constitution stipulated that the state shall protect and foster Budhism.

E) *Land alienation*: The land in north and eastern part of the country, which was considered as Tamil Homeland, was distributed among the landless Sinhala population

F) *Problems of power sharing and devolution*: The Sinhalese mainstream political parties and Sinhala Buddhist lobby vehemently opposed the equal representation of Tamils in the decision making bodies. All these factors went a long way to make the conflict more intense. It ultimately resulted in the demand of Tamils for a separate homeland in north and eastern part in the form of Tamil Elam.

1. *What is the main difference between a Federal form of government and a Unitary one?*
    a. *Federal form of government*: In a federal form of government, the constitution provides for the division of powers between the central government and the government of units.

Example: Indian constitution provides for the division of powers between the Union government and State governments.

Unitary form of government: In a unitary form of government there is concentration of all powers of governance in a National government. So, only a single government governs the country.
Example: In SriLanka, the National Government exercises all the powers of governance.

2. *State any two differences between the local government before and after the constitutional Amendment in 1992.* A) Local government in India before the constitutional Amendment of 1992 :
    a. Elections of these local governments were not held regularly.
    b. Local governments did not have any powers and resources of their own.

    B. Local Government in India after the constitutional Amendment of 1992 :
    c. It is now constitutionally compulsory to hold regular elections to local government bodies, i.e Panchayats and municipalities.

Now, the state governments are required to share some revenue and powers with local government bodies.

Topic: Forest and Wildlife Resources

Lesson 2

Q. Answer the following questions in about 30 words.

Q) What is biodiversity? Why is biodiversity important for human lives?

Ans. Biodiversity is the variation of wildlife and cultivated species in a given ecosystem.

In this interconnected web, each organism is a producer, consumer or decomposer. Other organisms, including humans, depend for their existence on such roles.

Q) How have human activities affected the depletion of flora and fauna? Explain.

Ans. Human activities such as poaching, deforestation, the expansion of railways, agriculture, commercial and scientific forestry, and mining are to blame for the depletion of flora and fauna.

Q. Answer the following questions in about 120 words.

(i) Describe how communities have conserved and protected forests and wildlife in India?

Ans) Indian forests are home to different communities. These communities have a complex relationship with their environment The Mundas and the Santhal of Chhota Nagpur region worship Mahua and Kadamba trees; the tribals of Orissa and Bihar worship the tamarind and mango trees. Similarly, the Bishnois of Rajas than hold the antelopes in high reverence. For these communities, particular flora and fauna are integral to their identity, so they take a number of steps to protect the same. Villagers around the Sariska Reserve have opposed mining activities in the region as these activities endanger wildlife. Villagers in the Alwar district of Rajasthan have banned hunting and lumbering activities in a 1200 hectare area they have marked as Bhairodev Dakav 'Sonchuri'. Such activities have helped preserve patches of virgin forest land.

(ii) Write a note on good practices towards conserving forest and wildlife.

Ans. Good practices towards conserving forest and wildlife are plenty.

Nowadays, many non-governmental organizations are working towards creating public awareness for conserving depleting forest cover and vanishing wildlife. Central and state governments in India have set up national parks and wildlife sanctuaries to protect forests and endangered species in wildlife. A recently developing practice towards conservation is the search for different conservation measures. Biodiversity is the new by-word of good practices towards conserving forest and wildlife. Various communities, especially in tribal areas, who are dependent on forests for their living, are now taking an active role in this form of conservation.

TOPIC4: GENDER, RELIGION & CASTE

Q1. Mention different aspects of life in which women are discriminated or disadvantaged in India.

A. In India, women are discriminated and disadvantaged in the following ways:

1. Women are not provided adequate education. The literacy rate among women is only

65.46% compared with 82.14% among men. The girls are normally left unattended by their parents and all preference is given on boys' education. As a matter of fact, the girls discontinue their studies said midway and do not even complete their schooling as the parents' focus remains fixed on boys' education.

2. The proportion of women among the highly paid and valued jobs is still very small. On an average, an Indian woman works one hour more than an average man everyday. Yet much of her work is not paid and, therefore, often not valued. ,

3. The Equal Wages Act says that equal wages should be paid to equal work. However, in almost all the areas of work, from sports and cinema to factories and fields, women are paid less than men, even when both do exactly the same work.

4. In many parts of India, parents prefer to have sons and find ways to have the girl child aborted before she is born. Such practices have led to a decline in child sex ratio in the country to merely 927 girls per thousand boys. There are reports of various kinds of harassment and exploitation done against women.

Q2. State different forms of communal politics with one example each.

Ans. Communalism can take various forms in politics. Some of these are listed as under:

i) Communalism in daily beliefs: The most common expression of communalism is in everyday beliefs. These routinely involve religious prejudices, stereotypes of j religious communities and the belief in the superiority of one's religion over the other religions. This is so common that we fail to notice it, even when we practising it. Religious Groups present in many parts of India are a good example of this.

ii) Formation of political parties based on religious communities: A communal mind has often a quest for political dominance of his own religious community. The people belonging to the majority community always try to be dominant over the people who are in minority. Thus, the people from the minority community

have a strong desire to have their own separate political unit. Separatist leaders and political parties in many parts of India are an example of this kind.

iii) Political mobilization on religious lines: Political mobilization on religious lines is another frequent form of communalism. This involves the use of sacred symbols, religious leaders and emotional appeals in order to bring the followers of one religion together in the political arena. For example, this technique is applied by many politicians to influence the voters from the largest religious communities in the country.

iv) Communal Riots: Sometimes communalism takes its most ugly form of communal violence, riots and massacre. India and Pakistan suffered some of the worst communal riots at the time of the partition. The post-independence period has also seen large scale communal violence. The riots in Gujarat in 2002 is an example of this kind.

Q3. State how caste inequalities are still continuing in India.

Ans. Caste inequalities have not completely disappeared from contemporary India. Some of the older aspects of caste system are still found in our country. Even today most people marry within their own caste or tribe. Despite constitutional prohibition, untouchability has not ended completely. The effects of centuries of advantages and disadvantages of taste system continue to be felt even today. The caste groups that had access to education under the old system have done very well in acquiring the modern education while those groups that had no access to education are naturally lagging behind. Consequently, the poor are mostly the low castes while the rich are the high castes, thereby showing that caste inequalities are still continuing in India.

Q4. *State two reasons to say that caste alone cannot determine election results in India.*

Ans. Caste alone cannot determine the election results in India because of the following reasons:

i) No parliamentary constituency in the country has a clear majority of one single caste. So every candidate and every party needs to win the confidence of more than one caste community to win elections.

ii) The ruling party and the sitting MP or MLA frequently lose elections in our country. It could not happen if all castes and communities were fixed to their political preferences.

iii)

Q5. What is the status of women's representation in .India's legislative bodies?

Ans. In India, the proportion of women in the Legislative bodies has been very low. In this respect, India is among the bottom group of nations in the world. Women's representation has always been less than 10% in the Lok Sabha and 5% in the State Assemblies. In the 2014 Lok Sabha elections, the percentage of women in the Indian Parliament is around l1%. It still remains far below the global average of around 21%. On the other hand, the situation is different in case of local government bodies. As one-third of seats in local government bodies is reserved for women, there are more than 10 lakh elected women representatives in rural and urban local bodies.

Q6. Mention any two constitutional provisions that make India a secular state.

Ans. The two constitutional provisions that make India a secular state are as under:

i) There is no official religion for the Indian state. Unlike the status of Buddhism in Sri Lanka, Islam in Pakistan and Christianity in England, the Indian constitution do not give a special status to any religion.

ii) The constitution provides to all individuals and communities, the freedom to profess, practice and propagate the religious of their choice.

Syllabus questions

1. *What were the Feminist Movements and their major demands?*
   a. The Feminist movements are the movements organized by various women organizations to create equality for women in personal and family life. These Feminist movements demanded equal rights for women in all the spheres of life. There were agitations in different countries for the extension of voting rights to Women. These agitations demanded enhancing the political and legal status of women. These movements also demanded improvement in the educational and career opportunities for Women.
2. *How have the feminist movements helped in improving the women's conditions?*

OR

Impact of Feminist Movements

Ans. The Feminist movements helped to raise the issue related to Gender division politically. Political mobilization on this issue helped to improve the women's role

in public life. Now women are working as scientists, doctors, engineers, lawyers, managers and college and university teachers which were earlier not considered suitable for women. In some parts of the world, for example in Scandinavanian countries such as Sweden, Norway and Finland, the participation of women in public life is very high

Q3. What is communalism?

Ans. Communalism is a situation when a particular community based on religion tries to promote its

own interest at the cost of other communities and feels that its religion is superior than other religions and places it even above the nation.

Q4. What are the various forms of communalism in India?

Ans. Communalism can take various forms in politics. Some of these are listed as under:

i) *Communalism in daily beliefs*: The most common expression of communalism is in everyday beliefs. These routinely involve religious prejudices, stereotypes of religious communities and the belief in the superiority of one's religion over the other religions. This is so common that we fail to notice it, even when we practicise it. Religious Groups present in many parts of India are a good example of this.

ii) *Formation of political parties based on religious communities*: A communal mind has often a quest for political dominance of his own religious community. The people belonging to the majority community always try to be dominant over the people who are in minority. Thus, the people from the minority community have a strong desire to have their own separate political unit. Separatist leaders and political parties in many parts of India are an example of this kind.

iii) *Political mobilization on religious lines:* Political mobilization on religious lines is another frequent form of communalism. This involves the use of sacred symbols, religious leaders and emotional appeals in order to bring the followers of one religion together in the political arena. For example, this technique is applied by many politicians to influence the voters from the largest religious communities in the country.

iv) *Communal Riots:* Sometimes communalism takes its most ugly form of communal violence, riots and massacre. India and Pakistan suffered some of the worst communal riots at the time of the partition. The post-

independence period has also seen large scale communal violence. The riots in Gujarat in 2002 is an example of this kind.

Q5. Why is India called a secular state?

Ans. India is called a secular state because of the following reasons:

a. There is no official religion for the Indian state. Unlike the status of Buddhism in Sri Lanka, Islam in Pakistan and Christianity in England, the Indian constitution do not give a special status to any religion.
b. The constitution provides to all individuals and communities, the freedom to choose, practicise and propagate the religion of their choice.
c. The constitution prohibits discrimination on grounds of religion.
d. At the same time, the constitution allows the state to intervene in the matters of religion in order to ensure equality within the religious communities. For example, it bans untouchability.

***Caste*:**

Q7. What is caste system?

Ans. Hereditary occupational division is known as the caste system. It has its roots in the ancient Varna system which has the following castes:

i) Brahmins
ii) Kshatriyas
iii) Vaishyas
iv) Shudras'

The people who did not belong to any caste were referred to as the untouchables. There was no social mobility in the caste system.

Q8. Mention the features of caste system.

Ans. The features of caste system can be listed as under:

1. Under the caste system, hereditary occupational division was sanctioned by the rituals.

2. The members of the same caste group were supposed to form a social community that practised the same or similar occupation, married within their caste group and did not eat with the members from the other the caste groups.

3.Caste system-was based on exclusion of and discrimination against the 'outcaste' groups. They were subjected to the inhuman practise of untouchability.

Q9. How has the caste system lost its grip in the modern times?

Ans. Though the caste system has not disappeared, yet it has lost its grip due to the efforts of political leaders and social reformers like Jotiba Phule, Gandhiji, B.R. Ambedkar and Periyar Ramaswami, Naicker, wrib advocated and worked to establish a society in which caste inequalities, was absent. With economic development, large scale urbanization, growth of literacy and education, occupational mobility and the weakening of the position of landlords in the villages, the old notions of Caste Hierarchy are breaking down.

Q10. What are the various forms that caste can take in politics?

Ans. The various forms that caste can take in politics can be listed as under:

a. *While choosing candidates:* When parties choose candidates in elections, they keep in mind the caste composition of the electorate and nominate candidates from different castes so as to gain necessary support to win the elections.
b. *Campaigning*: Political parties and candidates in elections make appeals to caste sentiment to mobilize support of the people. Some political parties are known to favour some castes and are seen as their representatives.
c. *Universal Adult Franchise*: Universal adult franchise and principle of "one person one vote" compelled political leaders to gear up the task of mobilizing and securing political support. It also brought new consciousness among the people of pastes that were before treated as inferior and low.

Qll. Are the elections of India all about castes and nothing else? Discuss

i) No parliamentary constituency in the country has a clear majority of one single caste. So every candidate and party needs to win the confidence of more than one caste community to win elections.

ii) The ruling party and the sitting MP or MLA frequently lose elections in our country. It could not happen if all castes and communities were frozen in their political preferences.

iii) No party wins the votes of all the voters of a caste or community. When people say that a caste is a 'vote bank' of one party, it usually means that a large proportion of the voters from that caste vote for that party.

iv) Many political parties may put up candidates from the same caste, if that caste is believed to dominate the electorate in a particular constituency. Some voters have more than one candidate from their caste while many voters have no candidate from their caste.

Q12. Give an example to show how politics can influence caste system in India.

Ans. Politics can also influence the caste system and caste identities by politicizing them i.e. by making caste political issue.

i) Each caste group tries to become bigger by incorporating within it neighboring castes or sub-castes which were earlier excluded from it.

ii) Various caste groups are required to enter into a coalition with other castes or communities and thus, enter into a dialogue and negotiation.

iii) New kinds of caste groups have come up in the political arena like "backward" and "forward" caste groups.

Q13. What are the positive effects of caste on politics?

Ans. In some situations, expressions of caste differences in politics give many disadvantaged communities the space to demand their share of power. In this sense, caste politics has helped people from Dalits and OBC castes to gain better access to decision making. Several political and non-political organizations have been demanding and agitating for an end to discrimination against particular castes, for more dignity and more access to land, resources and opportunities.

Topic: Nationalism In India

Q)*Why growth of nationalism…..*

A: Nationalism in Europe is usually associated with the formation of Nation states. However, in the Colonies like India, growth of nationalism is intimately linked to anti - Colonial movement. It is rightly said that nationalism in the Colonies developed partly as a reaction to the policies of the Colonies. The Colonial rule negatively affected the different sections of the people in the Colonies which developed a common feeling of oppression among them. It provided them a good platform for the exchange of nationalist and liberal ideas. The common sense of oppression and exploitation brought together the people of different castes, classes & communities to fight against the Colonial rule. So, the anti- Colonial movement resulted in the growth of nationalism in the Colonies.

Q) How the First World War helped in the growth of national movement in India?

A: The First World War (1914-18)' was an event of far-reaching significance. It transformed the Indian national movement into a mass movement, as it added to the myseries of the different sections of the Indian society. The contribution of First World War in the growth of Indian national movement is highlighted in the following points.

i) The First World War led to huge increase in defence expenditure. The result was huge national debt. It was met by increasing taxes, raising of customs duties, war loans & introduction of income tax. These measures created economic hardships for Indians as the prices doubled between 1913 & 1918.

ii) The failure of crops in 1918-19 & 1920-21 in many parts of India led to acute food shortages.The further shortage of food crops was due tp export of food to feed the army fighting abroad It was accompanied by influenza epidemic which claimed 12 to 13 million lives.

iii) Between the years of 1 914 and 1923 forced recruitment for the army was going on without interruptions, from rural areas of India caused widespread reaction against British.

This all helped in the growth of national movement in India[1]. This is evident

from the fact that the national movement spread to new areas, incorporated new social groups developed new modes of struggle after the war.

Q) Why Indians were outraged by the Rowlatt Act

A: The Indians were outraged by the Rowlatt Act because of the following reasons:

i. Despite the united opposition of the Indian members, the imperial legislative council hurriedly passed this Act.

ii. The Act was totally against the expectations of the Indians as they expected the establishment of a responsible Govt. after the World War - I.

iii. The Act-denied protection of law" to Indians as it empowered the Govt. to arrest a person on mere doubt & detain him for two years without trial.

iv. It strengthened the hands of Colonial Govt. to repress the political activities of lndian nationalist and revolutionaries.

This 'BIack Act' was strongly reacted by the Indians. Gandhiji in protest called for nation-wide hartal on 6th April, 1919.

Q)Why Gandhiji decided to withdraw the Non -cooperation movement?

Ans: Non -cooperation movement began in January 1921. However, Gandhiji withdrew it in February, 1922 because it took a violent turn. Gandhiji firmly believed in the philosophy of Ahimsa or non-violence. He had at the very beginning declared non-cooperation movement to be a non- violent movement. However, on 3rd Feb, 1922 at Chauri-Chaura in Gorakhpur district of U.P. people burnt alive 22 policemen by burning a local police station. Here Gandhiji withdrew the movement realizing that it took a violent turn. He felt that the people were not yet ready for a mass movement. So, they need to be trained to understand how to carry a non-violent struggle successfully.

Textual Questions

Q) What is meant by the idea of Satyagraha?

A.

i) The chief aspect of Gandhi's ideology was Satyagraha. It was a non-violent method of mass agitation experimented & developed by Gandhiji against racist

government of South Africa. Confident over its success Gandhiji adopted it to fight against the British government of India.

ii) It includes the means like hartals, peaceful demonstrations, boycott, picketting etc.

iii) Gandhi defined it as truth force or Soul force. It emphasized the power of truth and need to search for truth. It suggested that if the cause was true, if the struggle was against injustice then physical force is not necessary to light the oppressor.

iv) In more practical terms it meant civil-disobedience. Non-violence or ahimsa was the cardinal principal of his message which was non-negotiable under all circumstances.

iv) It was based on the premise of superior moral power of the protestors capable of changing the heart of the oppressor through a display of moral strength.

v) To win the battle through non-violence the Satyagraha could do it by appealing to the conscience of the oppressor. The oppressor had to be persuaded to see the truth, instead of being forced to accept truth through the use of violence.

Q3) Write a newspaper report (short note) on 'The Jallianwala Bagh Massacre/ Brutality of British in open/ The most brutal incident in the Indian history.'

A: On 13th April 1919, a large crowd of about 10000 people had assembled in the enclosed Jallianwala Bagh in Amritsar. Some had come to protest against the repressive measures of the British Govt. & others to attend the annual Baishakhi fair. The people were mostly unaware about the imposition of Marshall Law in the city.

General Dyer, the British military commander plugged off all the possible exits & without •any warning ordered his troops to open fire on the peaceful & unarmed protestors. The firing lasted for 10 minutes resulting into death of about 1000 civilians & wounded about 2000. The incident is popular in history as, .Jallianwala Bagh Massacre". The incident proved a turning-point in the Indian national movement. The brutal memories passed on from generation to generation & ultimately freed India from the British imperialism. The event was later described by General Dyer before the Hunter commission as the one meant for ,, producing a moral effect" among the Indians.

b) Simon Commission:

Why & how did the Indians Protest against Simon Commission.

ANS… In Nov, 1927Govt. in Britain appointed a commission under the chairmanship of Sir John Simon*fhe commission was to look into the working of 1919 constitutional reforms in India & suggest changes.The appointment of the commission sparked off a wave of protest all over India as all the seven members of the commission were Englishmen (whites). The exclusion of Indians in the commission mobilized the Indians to start a new phase of struggle against British rule. Therefore, the congress in its Madras session of December, 1927 decided to boycott the commission. So, when the Simon commission arrived in India on 03 February, 1928, it was welcomed by Nation-wide hartal, black flags & the slogans of, Go back Simon".

Q4) Compare the images of Bharat Mata in this Chapter (Nationalism in India) with the image of Germania in chapter l(The rise of Nationalism in Europe).

Ans: The artists in Europe tried to give a concrete shape to the abstract ideas of nationalism, liberty etc through personification. Same trend was followed by the Indian artists during the Indian National movement. The comparison between Germania & Bharat Mata is highlighted in the following points.

Germania	**Bharat Mata**
It is the female allegory of German nation was believed to instill nationalist feelings among the German people.	The devotion of people to Bharat Mata inspired nationalists to unify Indians & achieve freedom.
Germania stood as personifications of the revolutionary ideals like ..liberty" and ..the Republic.	The images of Bharat Mata came to be seen as symbols of nationalism.
Germania was portrayed in visual representations wearing a crown of oak leaves. As the German oak stands for heroism, so it was aimed to develop heroism among Germans.	Bharat Mata had been shown by different artists in different ways. Rabanindranath Tagore painted Bharat Mata as a calm, composed, divine & spiritual figure. But, in another figure she is shown with a Trishul standing besides a lion & an elephant symbolizing the power & authority of India.
As Germania did not reflect any religious basis in making Germania, it did not create any controversy among the people of Germany	As the concept of Bharat Mata is linked with Hinduism, it played an indirect role in the spread of communalism in pre-independent India.

Discuss

l)List all the different social groups which joined the non-cooperation movement of 1921-Then choose any three & write about their hopes & struggles to show why they joined the movement.

A: Non cooperation movement began in Jan, 1921 & was withdrawn in February, 1922.The different social-groups which joined the movement are enlisted as under:

i. Middle-class (students, teachers, lawyers etc) in the towns,

ii. Tribals in the hilly areas,

iii. Plantation workers

iv. Peasants in the countryside.

In the non-cooperation movement various social groups participated, but each with its own specific aspirations or hopes. Here we will highlight the hopes & struggles of three different social groups.

i) **Peasants:** In the countryside, the movement incorporated the peasant struggles. The peasants directed their movements against oppressive landlords e.g. In Awadh, peasants demanded reduction of revenue, abolition of begar & social boycott of oppressive landlords. So, for peasants Swaraj meant freedom from the exploitation of landlords.

ii) **Tribals:** Tribals interpreted the movement in their own way. They hoped that through this movement they could restore their traditional forest rights such as shifting cultivation, hunting & gathering etc. e.g. In Gudem Hills of Andra Pradesh, tribal peasants started a militant guerilla movement against British under Alluri Sitarama Raju.

iii) PlantationWorkers: The Gandhian programme & Swaraj was interpreted by plantation workers in their own way. For them swaraj meant freedom to move freely in & out of the confined space of plantations which was denied to them under Inland Immigration Act of 1859. For them non-cooperation prgramme included defying authorities, leave plantations & move towards home. e.g. for plantation workers of Assam freedom meant retaining a link with the village from which they had come.

Q) Discuss the Salt March to make clear why it was an effective symbol of resistance against Colonialism.

A: The civil disobedience movement was started by Gandhiji with his famous salt March on 12th March 1930 . He started the March from Sabarmati Ashram along with his 78 trusted followers. They marched on fool about 240 miles for about 24 days & reached Dandhi (a small village on the western coast) on 6 April. 1930.Here, Gandhiji broke the unjust salt law by picking a handful of salt. The salt march was an effective symbol of resistance against Colonialism. This is revealed from the following points.

i) Gandhiji found the salt most powerful thing that could unite the nation as it was a thing consumed by the rich & poor alike. It was one of the essential items of food.

ii) The British Govt. of India had monopoly over production of salt & salt tax hit every section of the Indian society. So. to break salt law was seen an act which would give wider base to
the anti-colonial movement & shook the British rule.

iii) During the course of salt march, thousands of volunteers were attracted towards Gandhiji. Gandhiji urged them lo peacefully break the British laws. Thus salt march became an effective instrument of mobilizing people against Colonialism.

iv) It was an open challenge to British laws as it gathered nationwide support against British & led to the spread of civil disobedience movement.

3) Imagine you are a woman participating in the civil disobedience movement. Explain what the experience meant to your life.

A: As a woman, participating in the civil disobedience movement would be great .experience for me. I would be highly delighted to become a part of anti-colonial movement. The participation in the movement along with thousands of like minded women for the national cause would raise the status of women in the society. So, participating in the civil disobedience movement provided me a great & cherishing experience in life.

Q) Why did political leaders differ sharply over the question of separate electorates?

A: Separate electorate system was an important part & feature of the British policy of divide & rule. The political leaders sharply differed over the question of separate electorates because of their respective compulsions & understandings which are described below:

i) The leaders of All India Muslim league, like M.A. Jinnah & Dr. Sir Mohammad Iqbal favoured separate electorate as a safeguard for muslims. They urged that in a Hindu majority country, the interests of the Muslims would suffer without separate electorate.

ii) RSS & Hindu Mahasabha. supported separate electorate, because the situation which forced the muslim leaders to demand for separate electorate was the result of activities of the RSS & Hindu Mahasabha Organisations.

iii) The congress leaders like J.L. Nehru & Gandhiji opposed the system of separate electorates. They considered it as an obstacle in the way of unity of Indians & the national movement.
Gandhiji even went on fast unto death to convince^B\R. Ambedkar for joint electorate.
.

iv) B.R Ambedkar , the leader of the Dalits, supported separate electorate for Dalits. He considered it an important tool for the upliftment of his people & to end the deprivation inflicted on them by the orthodox Brahmans.

Topic 3: The Rise of A Global World

Q1. Give two examples of different types of global exchanges which……..
A. Before the 17th century, various types of goods were exchanged between the different countries of the world e. g: pottery from China and textiles and spices from India and south-east Asia were exported to Europe. In return gold and silver flowed into Asia from Europe. Soya, groundnuts, potatoes, tomatoes, maize, chilies etc. were sent from the Americas to the European countries.
Q2. Explain how the global transfer of disease in the pre-modern ……..…
a) The Portuguese and the Spaniards had a very strong army force. Along with the solid army and fire power, they would also use germs and viruses to conquer the parts of America.
Since the American continent was isolated from the rest of the world, the inhabitants of this part of the world had no immunity to fight against these dreadful germs and viruses. Small pox proved to be a deadly killer. As introduced by the Europeans, it spread deep into the continent, killing the whole communities and paving the way for conquests. These germs proved to be more dangerous than the guns and the firearms. The Portuguese and the Spaniards used them to their advantage.
Q3.Write a note to explain the effects of the following:……..…
a) Food items imported into Britain from foreign countries were cheaper than the items produced within the country.
The agricultural class was badly hit and ruined as the British agriculture was unable to compete with the foreign imports.
Vast areas of land were left uncultivated, and thousands of men and women were thrown out of work. With the result, they flocked to the cities or migrated to the foreign lands to find work and make their living.
With the falling .of the food prices, the consumption of food-in Britain increased. As such the demand for food items in Britain increased and the lands around the world in Eastern Europe. Russia, Australia and America were cleared to meet the British demand.
The coming of rinderpest to Africa,
Rinderpest, a devastating cattle disease also known as The Cattle Plague' arrived in Africa during the late 1880% This disease carried by the infected cattle imported from British Asia to feed the Italian soldiers, who were busy fighting in east Africa. Entering from the east, rinderpest moved southwards like forest fires. It reached Africa's Atlantic coast in 1892 and five years later, it reached the southernmost tip of Africa, Cane Town. Along the way it killed almost 90% of the cattle in most parts of Africa. The loss of cattle destroyed the livelihood of the countless Africans. Using this situation to their advantage, the colonial government

conquered and subdued Africa by monopolizing the remaining cattle resources to strengthen their power. They also forced the poor Africans into the labour market which gave rise to the slave trade.

The death of working men in Europe because of the world war:

The First World War was fought among the leading industrial nations of the world. The European countries had recruited millions of youth in their army to fight the war on their respective borders. During the war, latest and sophisticated weapons were used and there was a huge and heavy human loss. The war killed millions of people, who were mostly in their working age. It left almost 9 million people dead, 6 million disabled and 20 million wounded. These deaths and injuries reduced the workforce in Europe and there was a steady decline in the household incomes. Industries were restructured to produce war related goods. As men were busy fighting wars, women came out to support the livelihood of their families. The trade also suffered a huge loss during the war.

The Great Depression OF Indian Economy:

The Great Depression of 1929-1934 had the following effects on the Indian economy:

It badly affected the Indian trade and the Indian imports and exports declined considerably. The imports and exports were nearly halved between 1929 and 1934.

The jute producers of Bengal were badly hit by this depression. The prices of the goods decreased tremendously. The price of the wheat fell by 50% and that of jute by 60%. As a result the jute cultivators came under heavy debts.

The peasants and the farmers suffered the most as compared to the city dwellers. Despite the fall in the prices of the food items, the British government refused to reduce their demands for such items. The poor peasants used up their savings, mortgaged their land and sold their jewellery to meet their expenses. The indebtedness of the peasants also increased.

The Civil Disobedience Movement led by Gandhiji was the direct result of this Great Depression because the people living in the rural areas were facing all kinds of hard ships and were seeing with unrest.

The Great Depression also ruined the cottage industry of India, resulting in the large scale unemployment.

The decision of MNCs to relocate production to Asian countries:

The multinational companies are the companies which are operating in several countries at the same time. The first multinational companies worked in Europe, but because of the high import taxes imposed by the government forced them to relocate their manufacturing operations. Between 1970 and 1990, the industrial world of Europe was badly hit by the large scale unemployment. This made these companies to shift their production units to Asian countries because of the low wages and low structural cost. This benefitted the Asian nations because the

chances of employment increased and there was tremendous- improvement in the economy of these countries.

Q4. Give two examples from history to show the impact of technology on food availability.

We find many instances from history which show how technology has influenced food availability. Some the examples are given as under:

Faster railways, lighter wagons and large ships helped in carrying the food items more cheaply and quickly form the faraway farms and production units to the distant market places. For example, the trade in meat reached its new heights during the late 19th century. Till 1870s, animals were shipped alive from America to the European countries and slaughtered at their destinations. Many of these cattle would die, fall ill or lose their weight during long voyages. This would make the food very expensive. With the coming of technology, the animals were first slaughtered and then shipped to the different European countries. Now food was available even to the common people at cheap rates.

The improvement in the means of irrigation is another example of the positive role of technology in food industry. A. net work of canals was built to transform the semi-deserts of Punjab into fertile and productive lands. As a result, wheat and corn was now grown to be exported to the foreign lands.

In short, the advent of technology decreased the cost of food and made it available to the common people at cheaper prices. It also helped in storing the food for longer periods.

Q5.What is meant by the Bretton Woods Agreement?

The Bretton Woods Conference, officially known as the United Nations Monetary and Financial Conference, was a gathering of the delegates from 44 nations, which met at Bretton Woods in U.S.A. in July, 1944 to agree upon a series of new rules and discuss the economic issues to meet the post Worm War challenges. The two major accomplishments of the conference were the creation of the International Monetary Fund (IMF) and the world bank also known as International bank of Reconstruction and Development. These organizations became operational in 1942 after a sufficient number of countries had ratified the agreement. These organizations were established to finance the post war reconstruction.

The main-objective of the Bretton Woods Agreement was to establish economic stability in the world. Under this agreement, the national currencies followed the fixed exchange rates and were pegged to the US dollar, for example the Indian rupee was pegged to the US dollar at fixed exchange rate: The dollar itself was anchored to gold at a fixed price. With the introduction of this system, an'unprecedented growth of trade and income for the western industrial nations and Japan was seen. There was also worldwide spread of technology arid enterprise.

Discuss:

Q7. Explain the three types of movements or flows within international…. The economists identified three types of flows with the international economic exchange, which are given as under:

1) *Flow of trade:* The flow of goods is referred to the trade in textiles and food products, especially cloth and wheat. With the expansion of industrial sector, the industrialized countries needed raw materials to feed their industries which they transported from Asia and Africa. India exported raw materials especially cloth and opium to Britain. In 1820s India became the single largest producer of opium to Britain. These items were mainly produced by the farmers of Bengal,Punjab and Rajasthan. Foods like soya, groundnuts, potatoes, maize, tomatoes, chillies and sweet potatoes came to India from the Americas after it had been discovered by Columbus.
2) *Flow of labour:* There was a large scale migration of labour from India to Europe and Americas during the, 19th century. A large number of Indian labourers went to work on plantations, mines and railway projects all over the world. Within India, the labourers migrated from Bengal to Assam to work in the plantations.
3) *Flow of capital:* This involves the flow of capital for a short and long term investments in the foreign countries. Capital was required to grow food and other crops for the world market. Indian barikers like ShikarpuriShroffs and traders financed agricultural exports in central and south-east Asia. The Indians also borrowed capital from the foreign countries to invest in the industrial sector.

These flows, were inter-related and affected, the lives of the people in many ways. These movement or flows greatly influenced the economic, political, social .and cultural lives of the people.

Q8. Explain the causes of Great Depression.

A world-wide economic crisis occurred in 1929 and it continued till the end of 1933 in many countries of the world. This Depression started USA and soon engulfed the major countries of the world except Russia. Due to this Great Depression millions of people were left jobless and the economy of most countries of the world collapsed heavily. Following were the main causes responsible for this Great Depression:

1. *Agricultural overproduction:* The farmers faced a similar overproduction crisis during these years. They came under heavy debts, which forced them to grow profitable cash crops such as wheat. Since wheat was grown on a large scale, there was surplus wheat available in the market, which drove the prices down and with the result the prices of other food items decreased tremendously. The farmers tried to expand the production of wheat, which brought down the prices of food items even further. Agricultural goods

remained unsold and got rotten in the shops, and go-downs for the lack of buyers.

2. *Overproduction in factories:* The First World War gave a great boast to the American Industry. The industries in America continued producing different kinds of goods at a tremendous speed even after the war and there was a glut in the market. Since the exports, had fallen, the glut could not be absorbed the home market. Thus, the unsold stock got accumulated in up market for the lack of buyers. The industrialists were badly ruined and USA suffered severe economic crisis.
3. *Overseas-Loans:* In mid 1920s many countries financed their investments through loans from the USA. It was easy to raise loans in the US. When business were going well, but because of the economic crisis of 1929 the overseas lenders of the USA stopped lending loans from the USA. In 1928 the US overseas loans amounted 1 billion dollars, which reduced to one-fourth of the amount in the coming year. The USA now decided to withdraw and the countries depended on the US loans faced an acute crisis.
4. *Hike in US import duty*: The US doubled import duties to protect its economy giving a severe blow to the world economy. Farmers could not sell their harvest, households were ruined and business collapsed.

Q9. Explain what is referred to as G-77 countries……

A group of 77 countries G77 is an organization, which was formed by the developing nations to promote their collective economic interests. As a result of Bretton Woods Conference, the two institutions, which were established to promote the economic interests of the industrial nations, were the IMF and world Bank.With the establishment of these institutions, the western industrial nation along with Japan increased their trade and incomes tremendously between 1950 and 1970. But most of the developing countries did not benefit from the fast economic growth witnessed by the western developed countries. The overall control of vital resources was given in the hands of former colonial powers. The developing countries and the newly independent countries, which came on the scene after decolonization, were not satisfied with the new economic order of the United Nations under IMF. The G77 wanted to form a new international economic order (NIEO) that would give them real control over their natural resources. Therefore, we say that the formation of G77 and NIEO was a strong reaction against the policies of IMF and World Bank, which gave opportunities to the western powers to exploit the developing and under developing nations.

Q6.

Do it yourself on your note book.

Chapter 3. Topic: Water Resources

Q:- Answer the following questions in about 30 words.

(i) Explain how water becomes a renewable resource.

(ii) What is water scarcity and what are its main causes?

(iii) Compare the advantages and disadvantages of multi-purpose river projects.

Ans. (i) All water that is used primarily ends up in the sea. From there, it enters the hydrological cycle in the form of water vapour. Freshwater is renewed by this cycle when precipitation occurs. Hence, water is a renewable resource.

(ii) Water scarcity or water stress occurs when water availability is not enough to match the demand for water. It is caused by an increase in population, growing demand for water, and unequal access to it.

(iii) Multipurpose river projects help in irrigation, electricity production, flood control, inland navigation and fish breeding. However, the reservoirs destroy local flora and fauna. Many native villages are submerged, and people lose their livelihood, with little or no hope of rehabilitation.

Q3 Answer the following questions in about 120 words.

(i) Discuss how rainwater harvesting in semi-arid regions of Rajasthan is carried out.

(ii) Describe how modern adaptations of traditional rainwater harvesting methods are being carried out to conserve and store water.

Ans. (i) Houses in the semi arid regions of Rajasthan have traditionally constructed tanks for storing drinking water. They are big and are. a part of the well-developed rooftop rainwater harvesting system. The tanks are constructed inside the main house or the courtyard, and are connected to the sloping roofs of the houses through a pipe. The rain falling on the rooftop travels down and is stored in the tanks. The first spell of rain is not collected as this water cleans the roof and the pipes. The rainwater from the subsequent spells is collected. This water is used till the next rainy season, and is a

reliable source of water even after other sources have dried up. The tanks also help in cooling the houses as rooms built around them have generally low temperatures due to conduction.

(ii) Traditional methods of rainwater harvesting like 'the rooftop method' are becoming popular in India. In Gendathur village, Mysore, about 200 households have adopted the rooftop rainwater harvesting method, thereby making the village rich in rainwater. The state of Tamil Nadu has made it compulsory for all the houses to have rooftop rainwater harvesting structures. Defaulters are severely punished.

اردو

جماعت دسویں حصہ اول

تعریف غزل

غزل کے معنی ہیں عورتوں کے متعلق باتیں کرنا۔ اصطلاحِ شعر میں غزل ان اشعار کو کہتے ہیں جو ایک ہی وزن اور ایک ہی قافیہ میں ہوں۔ غزل کے پہلے شعر کے دونوں مصرعے ہم قافیہ ہوتے ہیں۔ اسے مطلع کہتے ہیں۔ مطلع کے بعد والے شعر کے پہلے مصرعہ میں قافیہ کی قید نہیں رہتی۔ اگر اس میں بھی پہلے مصرع میں قافیہ کی پابندی کی جائے تو اسے حسنِ مطلع یا زیب مطلع کہتے ہیں۔ آخری شعر میں شاعر اپنا تخلص استعمال کرتا ہے۔ اس کو مقطع کہتے ہیں۔

غزل کے ہر شعر کا مطلب جداگانہ ہوتا ہے۔ مگر ایسی غزلیں بھی ہیں جو ایک ہی مضمون کو مسلسل پیش نظر رکھ کر کہی گئی ہیں اور ایسی غزل کو غزلِ مسلسل کہتے ہیں۔ کبھی کبھی غزل میں صرف دو تین ہی اشعار مسلسل ہوتے ہیں۔ ایسے اشعار کو قطعہ کہتے ہیں۔

غزل کا سب سے اچھا شعر بیت الغزل یا شاہ بیت کہلاتا ہے۔ جس غزل میں ردیف نہ ہوں اور صرف قافیے ہوں اس غزل کو غیر مردف کہتے ہیں۔ وہ بحر اور ردیف و قافیہ جس کے لحاظ سے غزل کہی جاتی ہے اسے غزل کی زمین کہتے ہیں۔

اردو میں غزل فارسی سے آئی۔ اس لئے اس کے مضامین میں بھی زیادہ تر فارسی کی ہی تقلید کی گئی ہے۔ قدیم شعراء غزل کو صرف عشقیہ مضامین تک محدود رکھتے تھے۔ مگر بعد کے اساتذہ نے اس میں تصوف، فلسفہ، وعظ اور اخلاقی مضامین کے علاوہ معاشرتی، سماجی غرض انسانی زندگی کے

متعلق سارے معاملات اس میں داخل کر دئے۔

غزل کی زبان شیرین اور شستہ ہونا ضروری ہے۔مشکل الفاظ اور تراکیب کا استعمال غزل کے لئے جائز نہیں ہے۔غزل کے اشعار کی تعداد مقرر نہیں۔کم سے کم پانچ اور زیادہ سے زیادہ اکیس اشعار کی غزلیں بھی لکھی گئی ہیں۔غزل اردو شاعری کی سب سے عام پسند اور محبوب صنفِ سخن ہے۔

میر تقی میرؔ کی حالات زندگی اور ادبی خدمات

نام میر تقی میرؔ تھا۔۱۷۲۲ء میں آگرہ میں پیدا ہوئے۔والد کا نام محمد علی تھا جو علی متقی کے لقب سے مشہور تھے۔چھوٹی عمر میں ہی میرؔ کے باپ کا سایہ سر سے اُٹھ گیا۔میر تقی میرؔ نے ابتدائی تعلیم اپنے والد اور سید امان اللہ سے حاصل کی۔کچھ عرصہ تک اپنے سوتیلے ماموں سراج الدین آرزو سے تربیت حاصل کی۔سراج الدین خان آرزوؔ فارسی کے بلند پایہ شاعر تھے۔آپ کو دیکھ کر میرؔ کو بھی شاعری کا شوق پیدا ہوا۔دلّی کی تباہی کے بعد میر تقی میرؔ دلّی چھوڑ کر لکھنؤ چلے گئے۔آپ کی عمر کا آخری حصہ پریشانیوں میں گزرا اور گوشہ نشین ہو گئے۔آپ کا انتقال ۱۸۱۰ء میں ہوا۔میر تقی میرؔ کو اردو کا بہترین غزل گو تصور کیا جاتا ہے۔میرؔ کے بعد آنے والے ہر ایک چھوٹے بڑے شاعر نے آپ کی عظمت کا اعتراف کیا ہے۔آپ کی کلیات چھ دیوان پر مشتمل ہے۔اس کے علاوہ آپ نے کئی مثنویاں اور مرثیے بھی لکھے ہیں

غزلیاتِ میر تقی میرؔ

غزل ۱:

ہمارے آگے تیرا جب کسو نے نام لیا
دل ستم زدہ کو ہم نے تمام تھام لیا

غزل کے اس مطلعے میں شاعر میر تقی میرؔ کہتے ہیں کہ اے میرے محبوب تمہارا ذکر جب میرے سامنے کیا گیا تو میرے دل کی بے قراری بڑھ گئی اور اس کی دھڑکن تیز ہوگئی۔ اس دل کو جو تمہارے ظلم و ستم سہتا آیا ہے۔ میں نے تھام کے رکھا یعنی بڑی مشکل سے اُس پر قابو پالیتا ہوں۔

وہ کج روش نہ ملا راستی میں مجھ سے کبھو
نہ سیدھی طرح سے ان نے میرا سلام لیا

شاعر کہتا ہے کہ میرا بے وفا محبوب مجھ سے اچھے طریقے سے کبھی بھی پیش نہیں آیا۔ وہ مجھ سے ٹھیک طریقے سے کبھی بھی نہیں ملا۔ جب بھی میں نے ان کو سلام کیا وہ سلام ٹھیک طریقے سے نہیں لیا۔ سلام کا جواب دینا تو دور کی بات ہے۔

میرے سلیقے سے میری نبھی محبت میں
تمام عمر میں ناکامیوں سے کام لیا

شاعر کہتا ہے کہ میں نے محبت میں وہ طریقہ اختیار کیا تھا کہ میں ساری زندگی محبت نبھاؤں گا۔ لیکن اس کے باوجود بھی مجھے ساری زندگی ناکامیوں کا سامنا کرنا پڑا۔ میں نے ہر وقت محبت نبھانے کی کوشش کی تھی لیکن مجھے ناکامیوں اور محرومیوں کا سامنا کرنا پڑا۔

اگر چہ گوشہ گزیں ہوں میں شاعروں میں میرؔ
یہ میرے شعر نے روئے زمین تمام کیا

شاعر میر تقی میرؔ اس شاعرانہ تعلیٰ میں اپنے آپ سے مخاطب ہوکر کہتے ہے کہ اے میرؔ اگر تو تنہائی کے ایک کونے میں تمام شاعروں سے الگ تھلگ بیٹھا ہوا تھا لیکن میں نہیں جانتا ہوں کہ تمہارے شعر کس طرح ساری دنیا میں مشہور ہو گئے۔ان کا چرچہ کیسے روئے زمین پر ہوا۔

غزل نمبر۲:

ہنگامہ گرم کن جو دل نو صبور تھا
پیدا ہر ایک نالے سے شورِ نشور تھا

غزل کے اس مطلع میں شاعر میری تقی میرؔ کہتے ہیں کہ میرا دل فتنہ فساد کو بڑھانے کیلئے بے تاب تھا۔میرا دل اس قدر اضطراب میں ڈھوبا ہوا تھا کہ اس کے نالوں یعنی فریاد میں قیامت کے شور جیسی شدت پیدا ہوگئی تھی۔

پہنچا جو آپ کو تو میں پہنچا خدا تئین
معلوم اب ہوا کہ بہت میں بھی دور تھا

میر تقی میرؔ کہتے ہیں کہ جب میں نے اپنے آپ کو پہچانا یعنی جب مجھے یہ معلوم ہوا کہ اس دنیا میں کس لئے آیا ہوں تو میں نے اللہ تعالیٰ کو پہچان لیا اور میں اس حقیقت سے واقف ہوا کہ جب ایک انسان اپنے آپ کو پہچان لیتا ہے اسے خود بخود خدا کی حقیقت معلوم ہوتی ہے۔میرؔ کہتے ہیں کہ آج مجھے احساس ہوا کہ میں خود سے کتنا دور تھا بقول شبیب رضویؔ:

اس نے کتنی لطیف بات کہی
خود شناسی خدا شناسی ہے
آتش بلند دل کی نہ تھی ورنہ اے کلیم
یک شعلہ برق خرمن صد کوہِ طور تھا

شاعر میر تقی میرؔ کہتے ہیں کہ جب حضرت موسیٰؑ نے دیدار الٰہی کی استدعا کی تو نور الٰہی کی تجلی سے کوہ طور ریزہ ریزہ ہو گیا اور حضرت موسیٰ یک دم بے ہوش ہو گئے۔ شاعر کے مطابق پیغمبر موسیٰؑ کو اللہ تعالیٰ یعنی اپنے محبوب کے وصال کی تڑپ اس قدر نہ تھی اس لئے وہؑ بے ہوش ہو گئے۔

کل پاؤں ایک کاسۂ سر پہ کو آ گیا
یکسر وہ استخوان شکستوں سے چور تھا

شاعر میر تقی میرؔ اس شعر میں مختصر کہانی بیان کرتے ہوئے کہتے ہیں کہ کل میرا پاؤں ایک انسانی کھوپڑی سے ٹکرایا جونہی مجھے نظر پڑی تو دیکھا کہ وہ کھوپڑی بوسیدہ ہو چکی تھی یعنی اس کی ہڈیاں خستہ ہو چکی تھی۔

کہنے لگا کہ دیکھ کے چل راہ بے خبر
میں بھی کبھو کسو کا سرِ پُر غرور تھا

شاعر کہتے ہیں کہ اس کھوپڑی سے ایک آواز آئی کہ اے بے خبر راہ گیر ذرا دیکھ کر چلو میں بھی کبھی کسی مغرور انسان کا سر تھا۔ شاعر یہ کہنا چاہتے ہیں کہ انسان کو اپنے وجود پر کبھی گھمنڈ نہیں ہونا چاہئے کیونکہ ایک نہ ایک دن اسے مٹی میں مل جانا ہی ہے۔

تھا وہ تو رشک حور بہشتی ہمیں میں میرؔ
سمجھتے نہ ہم تو فہم کا اپنی قصور تھا

میرؔ اس شاعرانہ تعلّی میں کہتے ہیں کہ اے میرؔ! تمہیں خدا نے اس قدر خوبصورت بنایا ہے کہ خلد کی خوریں بھی تیری خوبصورتی پر رشک کریں۔ لیکن لوگ اس بات کو اگر نہیں سمجھتے ہیں تو ان کی نا سمجھی ہیں۔

کتابی سوالات

جواب(۱) چونکہ شاعر میرؔ کا قلب محبوب کے ہجر میں اضطراب میں ڈھوب گیا ہے۔ جب شاعر کے سامنے محبوب کا تذکرہ ہوتا ہے تو اس اضطراب قلب میں اضافہ ہو جاتا ہے جس کی وجہ سے شاعر اپنے دل ستم زدہ کو تھام لیتا ہے۔

جواب(۲) صنعت تعلّی اس صنعت کو کہتے ہیں جس میں شاعر اپنی تعریف آپ کرتا ہے۔ درسی کتاب میں میر تقی میرؔ کی شامل شدہ غزلوں میں جو اشعار شاعرانہ تعلّی کے طور پر درج کئے گئے ہیں وہ درج ذیل ہیں

اگرچہ گوشہ گزیں ہوں میں شاعروں میں میرؔ
پہ میرے شعر نے روئے زمین تمام کیا
تھا وہ تو رشکِ حورِ بہشتی ہمیں میں میرؔ
سمجھے نہ ہم تو فہم کا اپنی قصور تھا

جواب(۳) کھوپڑی نے کہا!

اے بے خبر راہ گیر ذرا دیکھ کر چلو میں بھی کسی دن کسی مغرور انسان کا سر تھا۔ مقصد یہ کہ انسان کو اپنے وجود پر کبھی گھمنڈ نہیں ہونا چاہئے ۔ کیونکہ ایک نہ ایک دن اسے مٹی میں مل جانا ہی ہے۔

جواب(۴) تلمیح سے مراد کلام میں کسی قصے کی طرف اشارہ کرتا ہے۔

شاعر میر تقی میؔر نے اپنی غزل میں حضرت موسیٰؑ کا واقعہ بیان کیا ہے۔ حضرت موسیٰؑ نے اللہ تعالیٰ کے دیدار کی خواہش ظاہر کی تو اللہ تعالیٰ نے فرمایا کہ میرے نور کی شدت برداشت کے باہر ہے۔مگر موسیٰؑ بضد رہے تو اللہ تعالیٰ نے حضرت موسیٰؑ کو اپنے نور کی تجلی کی جھلک کوہ طور پر دکھائی تو موسیٰؑ یک دم بے ہوش ہو گئے اور کوہِ طور ریزہ ریزہ ہو گیا۔

داستان

عام طور پر داستان پرانے زمانے کی لمبی اور رومانی کہانی کو کہتے ہیں۔ داستان بہت ہی لطیف انداز میں بیان کی جاتی تھی۔جن میں خیالی قصے ہوتے تھے۔داستان میں عام طور حسن وعشق کی رنگینی واقعات وحادثات کی بہتات اور بیان کی لطافت ہوتی ہے۔داستان کا مقصد سننے والوں کو کچھ دیر کیلئے خوشی کا سامان مہیا کرنا ہے۔ درباروں میں داستان گو ملازم رکھے جاتے تھے۔ داستانیں قصّہ درقصّہ ہوا کرتی تھی۔اور داستان گوان کو قسط وار مہینوں سنایا کرتے تھے۔ان میں زیادہ تر خیالی قصےّ ہوتے تھے۔ پریوں،جنوؤں اور دیوؤں کے کارنامے بڑے حیرت انگیز طریقے میں بیان ہوتے تھے۔

داستان کا رواج اس زمانے سے شروع ہوا جب لوگوں نے دل جوئی کا سلسلہ شروع کیا۔ جنوبی ہندوستان میں لکھی گئی ملاّ وجہی کی ''سب رس'' اردو کی قدیم ترین داستان ہے۔شمالی ہندوستان میں لکھی گئی اردو کی پہلی داستان ''قصّہ مہر افروز و دلبر'' ہے۔ نئے تہذیبی تقاضوں نے انسان کو خیالوں کی دنیا سے نکال کر حقیقی زمین پر چلنے پر مجبور کیا جس سے اردو کی یہ صنف زوال کا شکار ہوگئی۔ایک انسان جو چیزیں روزمرہ کی زندگی میں حاصل نہ کرسکا وہ چیزیں اس کو داستانوں میں مل گئی۔

میر امن کی حالات زندگی اور ادبی کارنامے

نام امیر امن اور تخلص لطفؔ تھا۔ دہلی میں پیدا ہوئے۔ فورٹ دہلی میں حالات خراب ہوئے تو وہ کلکتہ پہنچے اور وہیں رہنے لگے۔ میر بہادر علی حسینی کی مدد سے ولیم کالج پہنچے اور گلکرسٹ کی فرمایش پر انہوں نے فارسی کے مشہور ''قصّہ چہار درویش'' کو اردو میں لکھا اور ''باغ و بہار'' نام رکھا ۔''باغ و بہار'' فوراً ہی مقبول ہوگئی۔ اور آج تک اس کی شہرت اور مقبولیت برقرار ہے۔ میر امن کو اسی ''باغ و بہار'' کی وجہ سے اردو ادب و زبان میں بلند مقام حاصل ہوا اور اپنا نام زندہ اور روشن کر دیا۔ اس قصے کو نہایت ہی دلچسپ انداز اور آسان انداز میں لکھا ہے۔ ''باغ و بہار'' کے مطالعے سے معلوم ہوتا ہے کہ میر امن کو اردو زبان پر قدرت حاصل تھی۔

میر امن اپنے زمانے کے اہل قلم حضرات میں شمار ہیں جس کی مثال ان کی تحریر کردہ ''باغ و بہار'' ہے میر امن کو واقعات بگاری پیش کرنے میں بہت قدرت حاصل تھی۔ آپ کی عبارت میں بے کار کی پیچیدگی نہیں ملتی ہے۔ آپ کی عبارت میں عربی فارسی اور دیسی الفاظ کا ذخیرہ اور خزانہ ہے۔ جس کی وجہ سے آپ کی تحریر موثر نظر آتی ہے۔ اور آج بھی آپ کی تحریر کی داد دی جاتی ہے۔ اور اردو ادب کیلئے ایک سنگ میل کی حیثیت رکھتی ہے۔

داستان ''سیر چہار درویش کی''

کتابی سوالات:

''سبق باغ و بہار'' میں جو فقرے آئے ہیں ان کا مفہوم مندرجہ ذیل ہے۔

خاطر جمع رکھنا = تسلی رکھنا

کنارہ پکڑنا = الگ ہونا

چھاتی پر سانپ پھرنا = رنج ہونا یا حسد ہونا

ٹھکانے لگانا= مار ڈالنا

روبکار ہونا= پیش آنا یا سامنے آنا

قول وقرار کرنا= وعدہ پورا کرنا

بغیر مارے مرجانا= بے موت مرجانا

اوپری دل سے= دکھاوے کے طور پر

جواب(۱) فرش پر سے پتھر ہٹانے کے بعد شہزادے نے زمین کے اندر ایک عمارت اور چار مکانات دیکھے۔ ہر ایک کے دالان میں سونے کی زنجیروں سے دس دس مٹکے لٹک رہے تھے۔ ہر ایک کے منہ پر ایک سونے کی اینٹ اور ایک جڑاؤ کا بنا ہوا بندر بیٹھا تھا۔ اس نے چاروں مکانوں میں چالیس گولیاں گن لی لیکن ایک مٹکا اشرفیوں سے بھرا پایا۔ اس پر نہ کوئی بندر تھا اور نہ ہی اینٹ رکھی تھی اور ایک حوض جواہرات سے بھرا دیکھا۔

جواب(۲) ملک صادق جنوں اور دیوؤں کا بادشاہ تھا۔ شہزادے کے والد نے جوانی کے وقت سے ہی ملک صادق کے ساتھ دوستی اور آمدورفت پیدا کی تھی۔

جواب(۳) ابوجہل ہمارے پیارے نبی حضرت محمد ﷺ کا سب سے بڑا دشمن تھا اور آپ ﷺ کو کافی تکلیفیں دیتا تھا۔ ابوجہل دینِ اسلام کی مخالفت کرتا تھا۔ شہزادے کا چچا بھی شہزادے کو جان سے مار ڈالنا چاہتا تھا اسی لئے اسے ابوجہل سے مشابہت دی ہے۔

جواب(۴) یہ فقرہ میر امن کی داستان ''سیر چوتھے درویش کی'' سے ماخوذ ہے۔ چوتھا درویش اپنے تین ساتھیوں سے کہنے لگا کہ میرے والد صاحب نے مرتے وقت اپنے بھائی کو وصیت کی کہ جب تک شہزادہ جو اس تخت کا مالک ہے جوان اور باشعور نہ ہو جائے تم اس کی جگہ کام کرنا یعنی اس ساری رعایت پر حکومت کرنا مجھے امید ہے کہ تم میری رعایا اور سپاہیوں کو خراب نہ ہونے دو گے۔ اور جب شہزادہ جوان ہو جائے گا تو یہ تاج و تخت اس کے حوالے کر کے اس کی شادی اپنی بیٹی روشن اختر سے کرنا تا کہ بادشاہت ہمارے خاندان میں ہی قائم رہے۔ یہ کہہ کر میرے والد صاحب کی موت ہوگئی۔

خلاصۂ "سیر چہار درویش کی"

جب چاروں درویش اپنی اپنی آپ بیتی سناتے رہے تو چوتھا درویش اپنا قصّہ یوں بیان کیا کہ میں چین کے بادشاہ کا بیٹا ہوں۔ زمانے کے اتار چڑھاؤ سے سے واقف نہیں تھا۔۔۔۔ کی زندگی گزارتا تھا۔ میرے والے نے مرتے وقت مجھے میرے چچا کے حوالے کیا اور چچا سے وصیت کی جو شہزادہ جوان ہو جائے اس کی پرورش کرنا۔ اور جوان ہو کر اسے تخت کا مالک بنا کر اپنی بیٹی روشن اختر سے شادی کر دینا۔ چچازاد بہن سے شادی کی خبر سن کر میں بہت خوش ہوا۔ ایک دن ایک کنیز نے میرے منہ پر تھپڑ مارا میں روتا ہوا اپنے مرحوم والد کے خادم مبارک کے پاس گیا۔ وہ مجھے روتا دیکھ کر بادشاہ کے پاس لے گیا۔ بادشاہ نے مجھ سے رونے کا سبب پوچھا اور کہا میرے خیال میں اب شہزادہ کی شادی کر دینی چاہئے۔ وہ یہ بات اور پری دل سے کہتا تھا۔ اس نے دربار میں نجومیوں سے کہا کہ کون سا مہینہ شادی کرنا اچھا رہے گا۔ انہوں نے اگلے سال شادی کا فیصلہ دیا۔ دو تین دن گزرنے کے بعد میں مبارک کے پاس گیا مکھے عیکھ کر رونے لگا اور کہا کہ بادشاہ تم کو مار ڈالنا چاہتا ہے۔ میں مبارک کے قدموں پر گر پڑا اور۔۔۔۔ کی درخواست کی۔ مبارک مجھے اس جگہ لے گیا جہاں میرے والد بیٹھا اور سویا کرتے تھے۔ ہم نے اس جگہ کرسی ہٹا کر اس کے نیچے فرش اٹھایا اور زمین کھودی۔ اچانت وہاں ایک کھڑکی نمودار ہوگئی۔ اس زنجیر کے ساتھ تالا لگا ہوا تھا۔ اس کے اندر چار مکانات اور ایک عمارت تھی۔ ہر ایک مکان کے دالار دس دس مٹکے لٹک رہے تھے۔ ہر ایک مٹکے کے منہ پر ایک سونے کی اینٹ اور جڑاو کا بنا ہوا بندر بیٹھا۔۔۔۔ ایک مٹکا جو کہ اشرفیوں سے بھرا پڑا تھا اس کے اوپر بندر نہیں تھا۔ میں نے مبارک سے سارا ماجرا دریافت کیا۔ مبارک نے کہا کہ میرے والد کی ملک صادق (جو جنوں کا بادشاہ ہے) سے دوستی تھی اور وہ انہیں یہی بندر تحفے پر دیتے تھے۔ لیکن بدقسمتی سے انہیں چالیسواں نہ ملے گا۔ چالیس پورے ہونے

پر ایک ایک بندر کے ہزار ہزار تابع ہوں گے۔ ہم جچھ بھی اسن کسے مانگے گے مل جائے گا۔ مبارت نے بادشاہ سے جھوٹ بولا کہ میں شہزادے کو مار ڈالوں گا۔ مبارک مکھے ملک صادق کے پاس لے گیا اور ملک صادق کو سارا مراجرا سنایا۔ ملک صادق نے ہر طرح کی مدد کرنے کا وعدہ کیا اور کہنے لگا کہ اگر شہزادہ ایک کام بخوبی انجام دے گا اور کسی قسم کی خیانت کی تو میں اس کے ساتھ بادشاہوں جیسا سلوک کروں گا اور جو کچھ شہزادہ کہے گا دوں گا۔

افسانہ کی تعریف

اردو میں مختصر افسانہ وہی نثری صنف ہے جسے انگریزی میں شارٹ سٹوری کہا جاتا ہے۔ مختصر افسانہ کی بہت تعریفیں کی گئی ہے۔ مثلاً یہ ایک ایسا نثری قصہ ہے کہ جس کے پڑھنے میں آدھا گھنٹہ تک کا وقت لگے۔ یا مختصر افسانہ کسی آدمی کی زندگی کے سب سے اہم اور دلچسپ واقعہ کا بیان ہے۔ جو سنا گیا ہو۔ جو کسی کو پیش آ سکتا ہو۔ کسی نے اس کو ایک واقعہ کا بیان بھی کہا ہے۔ یہ ایک حقیقت پسندانہ صنف ہے۔ انسانی زندگی کو بہتر بنانے کے لئے سماج اور فطرت کے طاقتوں سے کشمکش اس کا موضوع ہے۔ اس میں سماجی مسائل اور افراد کی ذہنی اور جذباتی الجھنوں کی ترجمانی ہوتی ہے۔ افسانہ میں زندگی کے کسی ایک پہلو کسی ایک واقعہ یا نفسیاتی حقیقت کو موثر طریقے سے پیش کیا جاتا ہے۔ اس میں ایک واقعہ ہی قاری کو توجہ کا مرکز بنا رہتا ہے۔ افسانہ میں آخر تک قاری کی دلچسپی بنی رہتی ہے۔ اس کا اختتام بھی موثر انداز میں ہوتا ہے۔ مغرب میں اس صنف کا آغاز انیسویں صدی کے وسط میں ہوا تھا۔ مغرب کے زیر اثر اردو میں اس کا آغاز بیسوی صدی کے اوائل میں ہوا۔

منشی پریم چند کی حالات زندگی اور ادبی خدمات

اصل نام دھنپت رائے تھا لیکن افسانے کی دنیا میں منشی پریم چند کے نام سے مشہور ہوئے۔ ان کی ولادت بنارس کے قریب ایک گاؤں پانڈیپور میں ۱۸۸۰ء میں ہوئی۔ان کے والد منشی عجائب لال ڈاک کے محکمے کلرک تھے۔ پریم چند آٹھ برس کے تھے کہ ان کی ماں اس دنیا سے رخصت ہوگئی۔اس کے بعد دادی نے پرورش کی ذمہ داری سنبھالی لیکن جلد ہی ان کا بھی انتقال ہوگیا۔اس اثنا میں ان کے والد نے دوسری شادی کر لی۔اسطرح وہ کسی حد تک باپ کی محبت سے بھی محروم ہوگئے۔ پندرہ برس کے ہوئے تو ان کی شادی کر دی گئی۔اس وقت وہ نویں جماعت میں پڑھتے تھے۔کچھ دنوں بعد والد کا سایہ بھی سر سے اٹھ گیا۔اور وہ انٹرنس پاس کرنے کے بعد تعلیم چھوڑنے پر مجبور ہوگئے۔انہوں نے پرائمیری سکول میں ملازمت کر لی اور ۱۹۳۶ء میں جہاں فانی سے کوچ کر گئے۔

افسانے کے میدان میں ان کا مرتبہ اور بھی بلند ہے۔ پریم چند کو زبان پر پوری قدرت حاصل تھی۔ان کے مشہور و مقبول افسانے ''قاتل کی ماں'' ''زیور کا ڈبہ'' ''گلی ڈنڈا'' ''نمک کا داروغہ'' اور ''کفن'' بہت مشہور ہیں۔ان کے افسانوی مجموعوں کے نام ہیں۔''پریم پچیسی'' ''پریم چالیسی'' ''واردات'' وغیرہ ان کے افسانوں اور ناولوں میں طنز و طرافت کے عمدہ نمونے بھی ملتے ہیں۔ان کی زبان نہایت شائستہ اور رواں ہے۔سادگی کو جوہر ہے۔

سوالات کے جوابات:

جواب(۱) پنڈت چندر دھر ایک استاد تھا۔ اس کی ماہوار آمدنی صرف پندرہ روپیہ تھی۔ اتنی کم تنخواہ اور آمدنی سے اس کا گزارہ مشکل سے ہوتا تھا۔ اس کو کسی قسم کا کوئی بھی آرام میسر نہیں تھا۔ دوسرا اس پیشے میں ترقی بہت کم تھی اور کبھی تو ترقی ہوتی ہی نہیں۔ اسی لئے وہ اپنے پیشے سے بے زار تھا۔

جواب(۲) داروغہ جی کا پنڈت جی کے ساتھ کچھ اچھا برتاؤ نہ تھا۔ پنڈت جی سیدھے سادھے آدمی تھے۔ داروغہ جی کبھی کبھی ان پر ترس کھا کر ہمسایگی کا حق ادا کرتا تھا۔ کبھی سیر آدھ سیر دودھ اور کبھی ترکاریاں بجھوا دیتا تھا۔ مگر اس کے وعوض پنڈت جی کو ٹھاکر صاحب کے دو اور منشی جی تین لڑکوں کی نگرانی کرنا پڑتی تھی۔

جواب(۳) پنڈت جی اور داروغہ جی نے سفر کے دوران ریل کے ڈبہ میں دو آدمیوں کو دیکھا۔ داروغہ جی نے لیٹے ہوئے مسافر سے جگہ چھوڑنے کیلئے کہا مگر اس نے انکار کیا اور کہا کہ تم نے مجھ پر جھوٹا الزام لگا کر پچیس روپے لیکر مجھے چھوڑا۔ پھر داروغہ جی نے دوسرے مسافر سے جگہ چھوڑنے کو کہا۔ اس نے داروغہ جی سے کہا کہ تم نے میلے میں میری پٹائی کی تھی اور دھکا دے کر داروغہ جی کو گاڑی سے باہر کر دیا۔ اس طرح داروغہ جی کو سفر کے دوران بے عزتی سے دوچار ہونا پڑا۔

جواب(۴) کرپا شنکر پنڈت جی کا شاگرد رہ چکا تھا۔ اور اس نے مسافروں کو اپنے گھر لے لیا۔ اس نے وہاں پہنچتے ہی آگ جلوادی، پلنگ بچھوا دیے اور کھانا پکوایا۔ کرپا شنکر نے خاطر مدارات میں کوئی بات اٹھا نہ رکھی۔ وقت رخصت کرپا شنکر کی آنکھوں میں آنسوں آ گئے اور اس نے پنڈت جی کے قدم چھوئے۔

جواب(۵) پنڈت جی کو اپنے پیشے کی عظمت کا احساس اس وقت ہوا جب انہوں نے دیکھا کہ داروغہ جی اور منسی صاحب کے ساتھ ان کے جاننے والوں نے کیسا برتاؤ کیا اور اس کے مقابلے میں کرپاشنکر نے پنڈت جی کی کتنی عزت کی اور خدمت کی جس کی وجہ سے پنڈت جی کو اپنے پیشے کی قدر و قیمت کا احساس ہوا اور اس کے بعد پنڈت جی نے اپنی تقدیر کا شکوہ کبھی بھی نہیں کیا۔

جواب(۶) عبرت سے مراد سبق حاصل کرنا یا نصیحت پکڑنا ہے۔ چونکہ ٹھاکراتی بل سنگھ کانسٹبل ہونے کے باوجود بھی اس کا برتاؤ لوگوں کے تئیں اچھا نہیں تھا۔ بیچ ناتھ بھی رشوت لیکر لوگوں کو تنگ کرتا تھا۔ جس کی وجہ سے ان دونوں کو بہت بے عزتی سے دوچار ہونا پڑا۔ اس کے برعکس پنڈت جی کو اجودھیا میں عزت ملی۔ جو کام ٹھاکراتی بل سنگھ اور منشی جی روپے پیسے ہونے کے باوجود نہ کر سکے۔ پنڈت جی کے مہربانہ سلوک سے اور اچھے اخلاق کی وجہ سے وہ کام ہوا۔ جس کی وجہ سے پنڈت جی کو ایک عبرت ناک سبق حاصل ہو۔ اسی وجہ سے اس افسانے کا نام عبرت رکھا گیا ہے۔

افسانہ عبرت میں درج شدہ چند محاوروں کے معنی مندرجہ ذیل ہے۔

نذر کرنا بمعنی عطا کرنا یا کسی کو دینا

ایک نہ سننا بمعنی بالکل نہ سننا

چھاتی پیٹنا بمعنی افسوس کرنا

افاقہ ہونا بمعنی فرق ہونا

خواجہ حیدر علی آتش کی حالات زندگی اور ادبی کارنامے

نام خواجہ حیدر علی اور تخلص آتش تھا۔ ۱۷۷۷ء میں فیض آباد میں پیدا ہوئے۔ بچپن میں ہی ان کے والد کا انتقال ہو گیا جس کی بنا پر ان کی تعلیم مکمل نہ ہو سکی لیکن ان کی شاعرانہ صلاحیت نے انہیں جلدی نواب محمد تقی خان ترقی کے دربار تک پہنچا دیا۔ نواب ترقی کے ساتھ وہ لکھنؤ آ گئے اور پھر وہیں کے ہو رہے۔ ان کے مزاج میں ایک فقیرانہ انداز تھا۔ جو عمر کے ساتھ بڑھتا گیا۔ تقریباً تمام زندگی انہوں نے تنگی تُرشی کے ساتھ گزاری اور کسی کے آگے ہاتھ نہیں پھیلائے۔ آخری عمر میں ان کی بینائی چلی گئی تھی۔ جس کی وجہ سے ادھر اُدھر آنا جانا ترک کیا تھا۔ آخر ۷۰ سال کی عمر میں ۱۸۴۷ء میں لکھنؤ میں انتقال کیا۔

آتش کے مزاج میں جو قلندرانہ شان تھی۔ وہ ان کی شاعری میں بھی نظر آتی ہے۔ ان کا لہجہ بلند آہنگ ہے۔ وہ چھوٹی سی بات کو بھی بڑی دھوم دھام سے کہتے ہیں۔ ان کے کلام میں زبان کی خوبصورتی اور خیال کا اچھوتا پن پڑھنے والے کو مسحور کر دیتا ہے۔ ان کی پیش کش سادہ اور شگفتہ ہے۔

غزلیات خواجہ حیدر علی آتش

دہن پر ہیں ان کے گماں کیسے کیسے
کلام آتے ہیں درمیاں کیسے کیسے

آتش فرماتے ہیں کہ کافی انتظار کے بعد جب مجھے محبوب سے ملاقات کا موقع ملتا تھا تو ان کے منہ پر عجیب قسم کی شک وشبہات کی باتیں ہوا کرتی تھیں اور یہی شک کی باتیں ہم دونوں کے درمیان ایک دیوار بن گئی جس کی وجہ سے ہم کبھی بھی کھل کر بات چیت نہ کر سکے۔

زمین چمن گل کھلاتی ہے کیا کیا
بدلتا ہے رنگ آسماں کیسے کیسے

آتش کہتے ہیں کہ اس دنیا کی زمین پر کیا کیا گل کھلتے ہیں یعنی فسادات کھڑے ہوتے ہیں۔ پیڑ پودے پھل پھول اگتے ہیں۔ یہاں تک کہ ایک انسان بھی اسی زمین کے اندر مدفن ہوتا ہے۔ اور ہمارے اور پر جو آسمان ہیں وہ بھی ہر وقت تبدیلیاں برپا کرتا رہتا ہے۔ ہر وقت آسمان رنگ بدلتا رہتا ہے اور یہ رنگ بدل دینا یعنی تبدیلیاں دنیا کا دستور ہیں۔

نہ گورِ سکندر نہ ہے قبر دارا
مٹے نامیوں کے نشاں کیسے کیسے

آتش اس شعر میں دنیا کی ناپائداری کے بارے میں لکھتے ہیں کہ دنیا فانی ہے۔ سکندر اعظم ایک بہت بڑا بادشاہ ہو کر ساری دنیا کو فتح کرنے کے خواب دیکھ رہا تھا۔ اس کی قبر کا کہیں بھی نام و نشان نہیں ہے اور نہ ہی دارا کی قبر کا کہیں نام و نشان ہے۔ وقت کے طوفان نے کیسی کیسی مشہور ہستیوں کے نام و نشان مٹائے۔ اصل میں یہ دنیا فانی ہے۔ اس دنیا میں کتنی بڑی بڑی ہستیاں آئیں اور چلی گئی۔

دل و دیدہ اہل عالم میں گھر ہے
تمہارے لئے ہیں مکاں کیسے کیسے

اس شعر میں شاعر اپنے محبوب کی بڑائی بیاں کرتے ہوئے کہتے ہیں کہ اے میرے محبوب تمہارے کتنے گھر ہیں۔ یعنی تم کتنے مکانوں میں رہتے ہو۔ تم دنیا والوں اور ان کی آنکھوں میں رہتے ہو۔ تمام دنیا والوں کی آنکھیں اور دل تمہارے گھر ہیں یعنی بسنے اور رہنے کی جگہیں ہیں۔

غم و غصّہ و رنج و اندوہ و حرماں
ہمارے بھی ہیں مہرباں کیسے کیسے

اس شعر میں آتش اپنے محبوب سے کہتے ہیں کہ اگر تمہارے اتنے مکانات ہیں تو دیکھو میرے بھی بہت سارے دوست اور احباب ہیں جن کو میں نے اپنی زندگی کا ساتھی بنالیا ہے۔ زندگی میں مجھے غم، پریشانیاں، تکالیف، مصائب اور ناامیدی کے سوا کچھ بھی نہیں ملا۔ لہٰذا میں نے ان ہی کو اپنے مہربانوں میں شامل کیا۔

کتابی سوالات کے جوابات

جواب(۱) اس غزل میں جس شعر میں انسان کی بے ثباتی کا ذکر ہے وہ درج ذیل ہے۔

نہ گور سکندر نہ ہے قبر دارا
مٹے ناموں کے نشاں کیسے کیسے

جواب(۲) شاعر حیدر علی آتش عشق میں ہمیشہ ناکام ہوا ہے۔ اور اس کو زندگی میں ہمیشہ پریشانیاں ہی ملی ہیں۔ وہ پریشانیوں اور ناامیدیوں کا سامنا کرنے کا عادی بن گیا ہیں۔ اور وہ اپنی زندگی ان ہی چیزوں کے ساتھ گزارتا ہے اور ہمیشہ ان ہی کو ساتھ پاتا ہے۔ اس لئے شاعر نے غم وغصہ ورنج واندوہ وحرماں کو اپنے مہربانوں میں شمار کیا ہے۔

نظم "شکستِ انتظار" مرزا محمد یاسین بیگ

گلی کے موڑ پہ مسجد کے مینار تلے خزاں رسیدہ رسیدہ چناروں کے زرد رو پتے
چراغ راہ کی مانند صبح و شام جلے

یہ اشعار مرزا محمد یٰسین بیگ کی نظم ''شکستِ انتظار'' سے لئے گئے ہیں۔ شاعر کہتے ہیں کہ گلی کے اس موڑ کے مینار کے نیچے زرد پتے پڑے ہوئے ہیں۔ جن پر خزاں کا اثر ہوا ہے۔ وہ پتے اس طرح چمکتے ہیں جس طرح راستے کا چراغ صبح وشام اور رات دن جلتا رہتا ہے۔

کہر میں لپٹی ہوئی ملگجی مضاؤں میں نظر نواز نظاروں کے داغ تک نہ ملے

محمد یاسین بیگ کہتے ہیں کہ فضائیں میلی اور دھند میں لپٹی ہوئی ہیں۔ جن کی وجہ سے نظر کو سرفراز کرنے والے نظاروں کا نام ونشان نہیں ملتا ہے۔

سیاہ رات کے دامن سے تیرگی نہ چھٹی فلک پہ جلتے ستاروں کے داغ تک نہ ملے

محمد یٰسین بیگ کہتے ہیں کہ کالی رات کے دامن سے اندھیرا ختم ہی نہیں ہوتا اور آسمان پر بھی ستارے نہیں ہیں۔ اندھیرے کی وجہ سے وہ ستارے بھی نظر نہیں آتے ہیں۔

گلی کے موڑ پہ اس سامنے کی کھڑکی میں وہ قیس منتظر و بے قرار بیٹھا ہے

محمد یاسین بیگ کہتے کہ گلی کے موڑ پر سامنے والی کھڑکی میں مجنون جو کہ لیلیٰ کی محبت میں پاگل ہے انتظار کرتا رہتا ہے اور اس کا دل نہایت بے قرار ہے۔

نظر نظر میں شراروں کا اضطراب لئے دھڑکتے دل سے سرراہ گزار بیٹھا ہے

محمد یٰسین بیگ کہتے ہیں کہ مجنوں کی ہر ایک نظر میں چنگاریوں کا اضطراب یعنی بیچینی اور بے قراری کا دل دھڑکتا رہتا ہے۔اسی بے قراری کے عالم میں وہ راستے پر بیٹھا ہوا ہے۔

اسے خبر نہیں شاید کہ محمل لیلےٰ گزر گیا تو کبھی لوٹ کر نہیں آیا

محمد یٰسین کہتے ہیں کہ مجنوں کو شاید معلوم نہیں کہ لیلیٰ کا کجاوہ یعنی اونٹ پر سجی ہوئی ڈولی وہاں سے گزر گئی اور کبھی واپس نہیں آئے گی اسی طرح جس طرح بہار اپنے اختیارات خزاں کو دے جاتی ہے پھر لوٹ کر واپس اسی شکل میں نہیں آتی ہے۔

کتابی سوالات کے جوابات

جواب(۲) موسم خزاں کی طرح نا امیدی دھندلی ہوئی اور اداس سی لگتی ہے۔نظم ''شکست انتظار'' میں اسی ذہنی کیفیت کا اظہار کیا گیا ہے۔محمد یاسین بیگ نے بہار کا ذکر کر کے امید کے فلسفہ کو اجاگر کیا ہے اور خزاں کا ذکر کر کے نا اُمیدی کا خاکہ پیش کیا ہے۔

جواب(۳) کھڑکی میں بیٹھے ہوئے قیس سے مراد عاشق ہے اور محمل لیلےٰ سے مراد محبوبہ ہے جو اونٹ کے اوپر رکھی ہوئی ڈولی میں بیٹھی ہے۔مختصراً نا امیدی مایوسی اور اداسی کی اس فضا میں بھی کسی کھڑکی میں بیٹھا کوئی عاشق یعنی مجنون کسی محبوبہ کا انتظار کرتا رہتا ہے۔ اسے وصل کی کوئی امید نہیں ہے۔وہ جانتا ہے کہ لیلےٰ کی ڈولی چلی جائے گی لیکن واپس نہ آئے گی۔لہٰذا وہ فضول اور بے فائدہ اس کا انتظار کرتا رہتا ہے۔

قطعہ کی تعریف

بغیر مطلع کے مسلسل غزل یا قصیدہ کو قطعہ کہتے ہیں۔ قطعہ کے لفظی معنی ٹکڑے کے ہیں۔ ابتداء میں اس کو قصیدہ کا حصّہ تصور کیا جاتا تھا۔ لیکن اب یہ مستقل صنف بن گئی ہے۔ آج کل اس کو عروج حاصل ہوا ہے۔ اس میں غزل اور قصیدہ کی طرح عام طور پر مطلع نہیں ہوتا صرف قافیہ اور ردیف کا خیال رکھا جاتا ہے۔ قدیم شعراء کے کلام میں دو یا دو سے زیادہ اشعار کو قطعہ کہا جاتا ہے۔ جدید شاعری میں دو اشعار یا چار مصرعوں کے قطعہ کو آزاد اور علٰحید صنف سخن مانا گیا ہے۔ قطعہ میں اکثر دو یا چار اشعار ہوتے ہیں۔ اور زیادہ سے زیادہ سترہ اشعار ہوتے ہیں۔ قطعہ میں ہر قسم کے مضامین بیاں کئے جاتے ہیں۔ عام طور پر قطعات میں اخلاقی اور نصیحت آمیز باتیں لکھی جاتی ہیں۔ میؔر، سوداؔ اور نظیؔر اکبر آبادی کے قطعات معروف ہیں۔

قطعہ ''نوکروں پر سخت گیری کرنے کا انجام'' از مولانا الطاف حسین حالؔی

ایک آقا تھا ہمیشہ نوکروں پر سخت گیر درگزر تھی اور نہ ساتھ ان کے رعایت تھی کہیں

یہ شعر مولانا الطاف حسین حالؔی کے قطعہ ''نوکروں پر سخت گیری کرنے کا انجام'' سے لیا گیا ہے۔ مولانا حالؔی کہتے ہیں ایک مالک ہمیشہ اپنے نوکروں پر سختی اور ظلم کرتا تھا۔ وہ مالک اپنے نوکروں کو نہ کبھی معافی دیتا تھا اور نہ ہی کوئی رعایت اور رحم کرتا تھا۔

بے سزا کوئی خطا ہرتی نہ تھی ان کی معاف کام سے مہلت کبھی ملتی نہ تھی ان کے تئین

مولانا الطاف حسین حالؔی کہتے ہیں کہ نوکروں کی غلطی سزا کے بغیر معاف نہیں کی جاتی تھی۔ ان کو اپنے کام سے کبھی بھی فرصت نہیں ملتی تھی۔ ہر وقت وہ اپنے مالک کا کام کرتے رہتے تھے۔

حسن خدمت پر اضافہ یا صلہ تو در کنار ذکر کیا نکلے جو پھوٹے منہ سے اس کے آفرین

جب بھی نوکر اچھی طرح سے خدمت کرتا تھا تو کبھی بھی اس نوکر کو انعام نہیں دیا جاتا تھا۔ مالک کے منہ سے کبھی بھی شاباشی کے دو الفاظ بھی نہیں نکلتے تھے۔ انعام کی تو بات ہی نہیں۔

پاتے تھے آقا کو وہ ہوتے تھے اس سے جب دوچار نتھنے پھولے، منہ چڑھا، ماتھے پہ بل، ابو یہ چیں

جب کبھی نوکر اپنے مالک کے سامنے آتے تھے تو ہر وقت مالک کو سخت غصے میں دیکھتے تھے۔ غصے کی وجہ سے ان کے مالک کے ساتھ پر بل یعنی شکن اور ابرو کھینچے ہوئے ہوتے تھے۔ کبھی بھی ان کا مالک مسکراتا ہوا نظر نہیں آتا تھا یعنی وہ ہر وقت غصّے میں ہوتا تھا۔

تھی نہ جز تنخواہ نوکر کیلئے کوئی فتوح آگے ہو جاتے تھے خاین جو کہ ہوتے تھے امین

نوکر کیلئے تنخواہ کے بغیر اور کچھ بھی نہ ہوتا تھا لہٰذا جو بھی نوکر امانت دار ہوتا تھا وہ یہاں آ کر خیانت دار بن جاتا تھا کیونکہ تنخواہ کے بغیر ان کو کوئی بھی معاوضہ نہیں ملتا تھا یعنی ان کو ایک پیسہ بھی زیادہ نہیں ملتا تھا۔

رہتا تھا اک اک شرائط نامہ ہر نوکر کے پاس فرض جس میں نوکر اور آقائے ہوتے تھے تعین

مولانا الطاف حسین حالؔی کہتے ہیں کہ ہر ایک نوکر کے پاس ایک شرائط نامہ ہوتا تھا جس مین مالک اور نوکر کے فرائض درج ہوتے تھے۔

گر رعایت کا کبھی ہوتا تھا کوئی خواستگار زہر کے پیتا گھونٹ آخر بجائے انگبیں

اگر کوئی نوکر کسی قسم کی رعایت کا طلب گار ہوتا تھا تو مالک کو سخت ناگوار گزرتا تھا۔ وہ میٹھی بات کے بجائے زہر کے گھونٹ پیتا تھا اور بڑی مشکل سے ناگوار چیز برداشت کرتا تھا۔

حکم ہوتا تھا شرائط نامہ دکھاؤ تا کہ یہ درخواست دیکھے واجبی ہے یا نہیں

اس کے بعد مالک حکم دیتا تھا کہ ہم شرائط نامہ دیکھنا چاہتے ہیں تا کہ ہم دیکھیں کہ یہ درخواست ٹھیک ہے یا نہیں یعنی نوکروں کی یہ درخواست ضروری ہے یا غیر ضروری۔

واں سوا تنخواہ کے تھا جس کا آقا ذمہ دار تھیں کریں جتنی وہ ساری نوکروں کے ذمہ تھیں

مولانا الطاف حسین حالؔی کہتے ہیں کہ شرائط نامہ میں تنخواہ کا ذمہ دار مالک ہوتا تھا باقی ساری ذمہ داریاں اور شرطیں نوکروں کے ذمے ہوتی تھیں۔

دیکھ کر کاغز کو ہو جاتے تھے نوکر لاجواب تھے مگر وہ سب کے سب آقا کے مارے آستین

اس کے بعد شرائط نامہ دیکھ کر نوکر لاجواب ہوتے تھے۔ لیکن وہ سب نوکر آقا یعنی مالک کے چھپے ہوئے دشمن تھے۔ مالک کے سامنے وہ کچھ بھی نہیں کہتے تھے۔ سارے نوکر اپنے مالک کے پیٹھ پیچھے برائی کرتے رہتے تھے۔

ایک دن آقا تھا اک منہ زور گھوڑے پر سوار تھک گئے جب زور کرتے کرتے دستِ نازنین

مولانا الطاف حسین حالؔی کہتے ہیں کہ ان نوکروں کا مالک ایک شرارتی گھوڑے پر سوار تھا۔ گھوڑے کو روکنے کے لئے مالک نے کافی زور لگایا اور اس کے نازک ہاتھ گھوڑے کو روکتے روکتے تھک گئے۔

دفعتاً قابو سے باہر ہو کے بھاگا را ہوار اور گرا اسوار صدرزیں سے بالائے زمین

اچانک وہ گھوڑا قابو سے باہر ہو گیا اور بہت تیز بھاگا۔ سوار یہاں مراد نوکروں کے مالک سے ہیں زمین پر گر پڑا۔

کی بہت کوشش نہ چھوٹی پاؤں سے لیکن رکاب کی نظر سائیس کی جانب کہ ہوا آ کر معین

مالک نے بہت کوشش کی کہ رکاب سے اس کے پاؤں الگ ہوں لیکن ایسا نہ ہو سکا۔ وہ صرف گھوڑے والے یعنی نوکر کی طرف دیکھتا تھا کہ شاید وہ آ کر اس کی مدد کرے۔

تھا مگر سائیس ایسا سنگ دل اور بے وفا دیکھتا تھا اور اس سے مس نہ ہوتا تھا لعین

گھوڑے والا یعنی نوکر بہت سنگ دل اور بے رحم و بے وفا تھا۔ مالک نوکر کی طرف مدد کے لئے دیکھتا تھا لیکن لعین نوکر پر اس کا کوئی بھی اثر نہیں ہوتا تھا۔

دور ہی سے تھا اُسے کاغذ دکھا کر کہہ رہا دیکھ لو سرکار اس میں شرط یہ لکھی نہیں

گھوڑے والا یعنی نوکر مالک کو دور سے ہی شرائط نامہ دکھاتا رہا اور کہتا رہا کہ اے مالک اس کاغذ میں ایسی کوئی شرط لکھی ہوئی نہیں ہے کہ میں تمہاری جان بچاؤں۔

کتابی سوالات کے جوابات

جواب (۱) حالؔی کے نزدیک نوکروں پر کبھی بھی ظلم نہیں کرنا چاہئے کیونکہ نوکر بھی انسان ہی ہوتے ہیں۔ ایک مالک کو چاہئے کہ وہ نوکروں کو مناسب اور اچھی تنخواہ دیں اوران سے پیار اور محبت سے پیش آئے۔ اگر ہم ان کے ساتھ ہمدردی اور پیار سے پیش آئیں گے تو وہ ہماری خدمت یعنی مالک کی خدمت سچے دل سے کریں گے۔ اور اپنے مالک کے لئے اپنی جان قربان کر سکتے ہے۔ اگر نوکروں کے ساتھ ہمدردانہ طریقہ اور سلوک نہ اپنایا جائے تو ہمارا حال بھی اس آقا جیسا ہوگا جس کا قصہ اس نظم ''نوکروں پر سخت گیری کرنے کا انجام'' میں بیاں کیا گیا ہے۔

جواب (۲) ہمیں اپنے ماتحتوں کے تعین ہمدردی کا مظاہرہ کرنا چاہئے۔ اگر ہم ان کے ساتھ ہمدردی سے پیش آئیں گے اوران کا خیال رکھیں گے وہ ہماری خدمت سچے دل سے کریں گے اور ہمارے صحیح معنوں میں وفادار ہوں گے۔

جواب (۳) ایک مالک اپنے نوکروں پر بہت ظلم کرتا تھا۔ وہ نوکروں کی غلطی کبھی بھی معاف نہیں کرتا تھا۔ ہر نوکر کے پاس ایک شرائط نامہ ہوتا تھا جس میں مالک اور نوکر کے فرائض درج تھے۔ اگر کبھی کوئی نوکر رعایت کی درخواست کرتا تھا تو مالک وہ شرائط نامہ نوکر کو دکھاتا تھا۔ اور نوکر شرائط نامہ دیکھ کر خاموش رہ جاتا تھا۔ ایک دن مالک ایک شرارتی گھوڑے پر سوار ہوا جس کی رفتار بہت تیز تھی۔ گھوڑا دوڑتے دوڑتے بے قابو ہو گیا مالک نے بہت کوشش کی کہ گھوڑا رک جائے مگر وہ ناکام ہوا۔ مالک گھوڑے سے گر پڑا اور نوکر کی طرف مدد کیلئے دیکھتا رہا۔ وہ سنگ دل اور بے رحم نوکر دور سے ہی مالک کو شرائط نامہ دکھاتا رہا اور مالک سے کہتا رہا دیکھو سرکار تم کو بچانے کی شرط اس میں درج نہیں ہے۔ میں آپ کو کیسے بچاؤں گا۔

جواب (۴) الف) بہت کوشش کی لیکن پاؤں سے رکاب نہ چھوٹی

ب) آخر سائیس کی جانب نظر کی کہ معین ہو۔

ج) مرا سائیس ایسا سنگ دل اور بے وفا تھا۔

د) لعین دیکھتا تھا اور ٹس سے مس نہ ہوتا تھا۔

خواجہ الطاف حسین حالؔی کی زندگی اور ادبی خدمات

خواجہ الطاف حسین حالؔی پانی پت میں ۱۸۳۷ء میں پیدا ہوئے۔ آپ کے والد ایزد بخش کا انتقال آپ کی کم عمری یعنی نو برس میں ہوا۔ آپ کی پرورش آپ کے بڑے بھائی نے کی۔ روزی روٹی کے لئے آپ دہلی آئے اور نواب مصطفیٰ خان شیفتہؔ رئیس جہانگیر آباد سے جان پہچان ہوئی۔

انہوں نے آپ کو اپنے بچوں کا استاد مقرر کیا۔شروع میں حالؔی نے دلی کے اینگلو عربک اسکول میں فارسی پڑھائی اور پھر لاہور کے تعلیمی بُک ڈپو میں کام کرنے لگے۔اور یہاں مولوی محمد حسین آزاد کے ساتھ کام کرتے رہے۔ان ہی کے اشاروں پر حالؔی قدرتی شاعری کی طرف متوجہ ہوئے۔اردو نثر میں قابل قدر تصانیف ''یادگارِ غالب'' حیات سعدؔی اور ''حیات جاوید'' ہیں۔اردو تنقید کی پہلی کتاب ''مقدمہ شعروشاعری'' ہے۔غزلوں کے مقابلے میں ان کی نظمیں زیادہ مشہور ہیں۔جن میں مسدس، مرثیہ غالبؔ، مناجات بیوہ قابل ذکر ہیں۔مدو جزرِ اسلام میں حالؔی نے مسلمانوں کی عروج وزوال کی داستان بیان کی ہے۔سرسید احمد خان نے اس نظم کو آپکے نیک اعمال میں شمار کیا ہے۔حالؔی اردو کے پہلے شاعر ہیں جنہوں نے عورتوں کی ہمدردی میں مناجاتِ بیوہ اور چپکی داد جیسی جیسی نظمیں لکھی۔آپ نے ۱۹۱۴ء میں پانی پت میں انتقال فرمایا اور وہیں سپرد خاک ہوئے۔

Part B

ڈراما کی تعریف

ڈراما ادب کی اہم ترین اصناف میں شمار ہوتا ہے۔نقل کرنا انسان کی فطرت میں داخل ہے۔ کوئی بھی قوم مہذب ہو یا غیر مہذب یہ خوبی اس میں ضرور پائی جاتی ہے۔ بچے لڑکپن میں بڑوں کی نقل کرتے ہیں۔ جوان بوڑھوں کے نقش وقدم پہ چلتے ہیں۔ وہ دوسرے لوگوں کے تاثرات اور حرکات کی نقل کرتے ہیں۔جس سے ڈراما وجود میں آتا ہے۔یعنی ڈراما انسان کے جذبہ نقالی ہی کا اظہار ہے۔ڈرامے کا تعلق براہ راست زندگی سے ہے۔اس فن کا مقصد نہ صرف زندگی کے مختلف پہلوؤں پر روشنی ڈالنا ہے بلکہ سیاسی ، اخلاقی ، معاشرتی، نفسیاتی اور مذہبی اعتبار سے انسان کی اصلاح کرنا بھی ہے۔ڈرامانہ صرف پڑھنے سے تعلق رکھتا ہے بلکہ اسٹیج پر عملی صورت اختیار کرتا ہے۔

ڈرامے کا سب سے زیادہ اہم جز پلاٹ یا کہانی ہوتا ہے۔اس کی پہلی خصوصیت یہ ہونی چاہئے کہ اس کا تعلق زندگی سے ہو۔ یہ حقیقت پر مبنی ہو۔اس میں واقعات کی ترتیب اس طرح ہونی چاہئے کہ ایک تو ہر آنے والا واقع اس سے پہلے واقعے کے ساتھ مکمل طور پر جڑا ہو۔دوسرے یہ ہے کہ پہلے واقع سے زیادہ متاثر کرے۔

ڈرامہ نگار کا فرض ہے کہ وہ ایسے کردار اور اشخاص چنے جن سے اُسے زندگی میں واسطہ پڑتا ہے۔ڈرامے میں کام کرنے والوں کا کام ایسا ہونا چاہئے کہ دیکھنے والوں کو اچھا لگے۔

ڈرامے کا تیسرا جز مکالمہ یعنی زبان و بیان ہے۔ڈرامے میں مکالمہ نگاری ایک بڑا فن ہے۔دراصل مکالمہ سے ہی کرداروں کے اخلاق، اوصاف اور عیوب وغیرہ ظاہر ہوتے ہیں۔

کتابی سوالات کے جوابات:

جواب۱) جنگل میں پیڑ کاٹتے ہوئے لکڑہارے نے درخت کی ڈراونی آواز سُنی۔اس آواز سے سارا جنگل گونج اٹھا۔درخت نے کہا کہ مجھے مت کاٹو۔میں وقت آنے پر تمہیں انعام دوں گا۔

جواب۲) لکڑہارے کی بیوی صفائی کر رہی تھی۔یہ دیکھ کر لکڑہارے نے کہا کہ تمہاری روز روز کی صفائی سے فرش خراب ہو جائے گا۔یہ سن کر بیوی کو غصہ آیا اور بولی کہ میری جیسی بیوی کسی اور کو مل جاتی تو میرے پاؤں دھو دھو کے پیتا۔تم نے کیچڑ بھرے پیروں سے ساری صفائی خراب کر دی۔اس طرح میاں بیوی میں تو تو میں میں شروع ہونے لگی۔

جواب۳) بوڑھے نے لکڑہارے کے گھر آ کر کہا کہ میں جنگلی ہوں اور شام ہونے سے پہلے جنگل واپس پہنچنا ہے۔مختصراً بات یہ ہے کہ اس نیک آدمی نے میرے پرانے دوست پر بڑی مہربانی کی ہے۔جس کے عوض جنگل کا بادشاہ اس کی تین منہ مانگی مراد پوری کرنا چاہتا ہے۔

جواب۴) لکڑہارا کام سے تھکا ہوا گھر لوٹا تھا اور اُسے کافی زوروں کی بھوک لگی تھی۔اس کے گھر میں کھانے کو کچھ نہ تھا۔اس لئے اس نے بورکا لڑو مانگا۔

جواب۵) لکڑہارے کی بیوی اسے بار بار مال و دولت مانگنے پر مجبور کرتی تھی۔

جواب ۶) بوڑھے آدمی کے نذدیک سب سے بُری دولت ہنسی ہے جس کی وجہ سے ہر گھر میں خوشی مسرت اور سکون ہوتا ہیں۔

جواب ۷) اس ڈرامے کا بنیادی موضوع ماحولیات ہے۔ ماحول کا توازن برقرار رکھنے میں درخت اہم کردار ادا کرتے ہیں۔ اگر یہ توازن بگڑ جائیں تو ماحول میں آلودگی بڑھ جاتی ہے۔ اس ڈرامے سے درج ذیل اسباق حاصل ہوتے ہیں۔

الف) لالچ بری بلا ہے جس کا انجام ہمیشہ غلط ہوتا ہے۔

ب) ہمیں ہر وقت مال و دولت کی نہیں بلکہ خوراک کی ضرورت ہوتی ہے۔ اسلئے ہمیں جنگلوں کی حفاظت کرنی چاہئے۔

ج) بات بولنے سے پہلے اسے تولنا چاہئے۔ ہر وقت سمجھداری سے کام لینا چاہئے۔

د) آپس میں لڑنے سے نقصان ہوتا ہے۔

ہ) مال و دولت ملنے پر غرور نہیں کرنا چاہئے۔

ڈرامہ میں درج شدہ محاورات کے جملے:

محاورہ: پاؤں دھو دھو کر پینا بمعنی بے حد احترام کرنا

جملہ: ہم اگر اپنے والدین کے پاؤں دھو دھو کر بھی پی لے تو کم ہے۔

محاورہ: ڈر کے مارے کانپ اٹھنا بمعنی خوف سے لرز جانا

جملہ: حمید کی حادثے کے بعد حالت دیکھ کر میرا دل ڈر کے مارے کانپ اٹھا۔

محاورہ: منہ دھو رکھنا بمعنی امید چھوڑ دینا

جملہ: احمد نے در در کی ٹھوکریں کھا کر سرکاری نوکری ملنے سے اب منہ دھو رکھا۔

محاورہ: خاک میں ملنا بمعنی ضائع ہو جانا

جملہ: امجد نے دسویں جماعت میں ناکامی حاصل کر کے اپنی عزت خاک میں ملائی۔

محاورہ: بے سر پیر اڑانا بمعنی غلط بات کہنا

جملہ: جو انسان بے سر پیر کی اڑاتا ہے وہ کبھی کامیاب نہیں ہوتا۔

محاورہ: کانٹے بونا بمعنی برائی کا کام کرنا

جملہ: جو انسان دوسروں کے لئے کانٹے بوتا ہے وہ ان میں خود پھنس جاتا ہے۔

محاورہ: پیٹ میں چوہے دوڑنا بمعنی بہت بھوک لگنا

جملہ: انعام کے پیٹ میں کھا کر بھی چوہے دوڑتے رہتے ہیں۔

خلاصہ ڈراما "بور کے لڈو"

ایک گاؤں میں ایک لکڑہارا اور اس کی بیوی رہتی تھی۔ دونوں ہر وقت بات بات پر لڑتے رہتے تھے۔ ایک دن جب لکڑہارا لکڑیاں لیکر گھر آیا اس کی بیوی جھاڑوں دے رہی تھی۔ لکڑہاتے نے بیوی سے کہا کہ روز روز کی صفائی سے فرش خراب ہو جائے گا۔ یہ سن کر بیوی کو غصہ آیا اور دونوں میں لڑائی ہوئی۔ اصل میں لڑائی پیسوں کی تھی۔ بیوی کے پاس کھانا پکانے کے لئے کچھ بھی نہ تھا۔ لکڑہارے نے پیسے نہ لانے کی وجہ بتائی کہ میں جنگل میں ایک درخت کاٹنے ہی والا تھا کہ اچانک ایک آواز آئی کہ مجھے مت کاٹو۔ اس کے بدلے میں تمہیں انعام سے نوازوں گا۔

میاں بیوی اس تکرار میں تھے کہ باہر سے کسی نے دروازے کی زنجیر ہلائی اور چھوٹے قد کا بوڑھا آدمی اندر آیا۔ جو سبز لباس پہنے ہوئے تھا اور کہا کہ میں جنگل سے آیا ہوں۔ اس لکڑہارے نے میرے دوست پر بہت بڑی مہربانی کی اس لئے میں اس کو انعام دینے آیا ہوں۔ میں اس کی تین مرادیں پوری کروں گا۔ بیوی نے بوڑھے آدمی سے کہا کہ انعام مجھے ملنا چاہئے۔ لکڑہارے نے

ایک گرما گرم بور کا لڈو مانگا۔اسی وقت اس کے ہاتھ میں ایک گرما گرم لڈو آیا۔اس پر میاں بیوی نے لڑنا شروع کیا۔اور بیوی لڈو لیکر دور چلی گئی۔اور کہا کہ ہم کو اس کی کوئی ضرورت نہیں۔ہم کو مال و دولت چاہیئے۔لکڑہارے نے دوسری مراد مانگی کہ لڈو اس کی بیوی کی ناک پر چمٹ جائے۔لڈو بیوی کی ناک پر چمٹ گیا۔آخر کار لکڑہارے نے تیسری مراد مانگی کہ بیوی کی ناک پر سے لڈو ہٹ جائے۔لڈو ناک سے الگ ہوگیا۔اور دونوں میں لڑائی شروع ہوگئی۔یہ سب کچھ دیکھ کر بوڑھا ہنسا اور کہا کہ میں تمہیں کہا تھا جو کچھ بھی مانگو گے سوچ سمجھ کر مانگنا۔اب افسوس کرنے سے کوئی بھی فائدہ نہیں۔

اصل میں تم دونوں کو ''ہنسی اور خوشی'' کی ضرورت ہیں۔خوش ہوکر زندگی گذارنا بہتر زندگی کی علامت ہے۔یہ کہہ کر بوڑھا آدمی غائب ہوگیا۔

محمد عمر نور الٰہی کی حالت زندگی اور ادبی خدمات

محمد عمر نور الٰہی ۱۳۰۰ ہجری میں پیدا ہوئے۔بچپن میں ہی والدین کا انتقال ہوجانے کی وجہ سے آپ کی پرورش آپ کے نانا جان نے کی۔۱۸۹۴ء میں ان کے نانا بھی اللہ کو پیارے ہوگئے۔ اب آپ کی پرورش آپ کی بے اولاد خالہ کے حصّے میں آئی۔جس نے بڑی شفقت ومحبت سے آپ کو پروان چڑھایا۔۱۹۰۵ء میں آپ نے رنبیر ہائی اسکول جموں سے مٹرک کا امتحان پاس کیا اور مذید تعلیم کے لئے لاہور کے فارمن کرسچن کالج میں داخلہ لیا۔مدت کے بعد میاں فضل الٰہی کی بیٹی سے آپ کی نسبت قرار پائی۔آپ جموں وکشمیر ہائی کورٹ میں مترجم کے عہدے پر فائز ہوگئے۔

آپ کو بچپن سے ہی علم حاصل کرنے کی لگن تھی۔آپ نے پڑھائی کا سلسلہ جاری رکھا۔ ملازمت کی گوناگو مصروفیات کے باوجود آپ نے منصفی کا امتحان پاس کرکے قانون کی سند حاصل

کر لی۔ ۱۹۲۵ء سے ۱۹۳۶ء تک آپ بطور جج مختلف عہدوں پر کام کرتے رہے۔ ۱۹۳۶ء میں سب جج کے عہدے سے سبکدوش ہوئے۔ اور اس کے بعد آپ وکالت کرتے رہے۔

محمد عمر کا انتقال ۱۳ اکتوبر ۱۹۴۶ء کی صبح کو دل کی حرکت بند ہونے سے ہوا اور جموں میں قلعہ باہو کے سامنے قبرستان پیر دقادر بخش میں سپرد خاک کیے گئے

آپ نے نہ صرف ڈرامے لکھے ہیں بلکہ انہیں اسٹیج پر بھی لایا ہے۔ آپ کے علمی اور ادبی کارناموں میں ''ناٹک ساگر'' مشہور و معروف ہے۔ یہ کتاب ۱۹۲۴ میں شائع ہوئی۔ اس کے علاوہ آپ کے متعدد ڈرامے، افسانے، تنقیدی مضامین اور نظم پارے ریاستی اردو ادب کو آپ کی دین ہیں۔

شاؔد عظیم آبادی کی حالات زندگی اور ادبی خدمات

نام علی محمد اور تخلص شاؔد تھا۔ آپ ۱۸۴۶ء میں عظیم آباد پٹنہ میں پیدا ہوئے۔ چار سال کی عمر سے ہی تعلیم شروع کی۔ عربی اور فارسی کی تعلیم کے ساتھ ساتھ انگریزی بھی پڑھتے رہے۔ آپ بچپن سے ہی ذہین تھے۔ اور اچھے اساتذہ کی تربیت سے ایک اچھے شاعر بنے۔ اسلامی تعلیم کے علاوہ آپ عیسائیوں، پارسیوں اور ہندوؤں کی مذہبی کتابیں بھی پڑھتے رہے۔ علمی خدمات کے لئے حکومت کی طرف سے خان بہادر کا خطاب ملا۔ آپ ۱۹۲۷ء میں اس دنیا سے چل بسے۔ نثر و نظم دونوں میں شاؔد ماہر جانے جاتے تھے۔ آپ کی غزلوں کا دیوان آپ کی وفات کے بعد آپ کے ایک شاگرد حمید عظیم آبادی نے جمع کر کے ''نغمۂ الہام'' کے نام سے شائع کیا۔ شاؔد نے مثنوی، غذل، قصیدہ مرثیہ پر بھی قلم اٹھایا لیکن آپ غزلوں میں کافی مشہور ہے۔ آپ کی غزلیں ترنم اور لطافت سے بھری ہوئی ہیں۔ زبان صاف اور سادہ ہے۔

غزلیات شاد عظیم آبادی

تمناؤں میں الجھایا گیا ہوں کھلونے دے کے بہلایا گیا ہوں

غزل کے اس مطلع میں شاعر شاد عظیم آبادی کہتے ہیں کہ جس طرح ایک بچے کو کھلونے دے کر اس کا دل بہلایا جاتا ہے اور اس کو ان کھلونوں سے خوش کیا جاتا ہے۔ اسی طرح مجھے بھی اس دنیان میں لا کر بہت سی تمناؤں میں پھنسایا گیا۔ میری خواہش تھی کہ میں اس دنیا میں آ کر کچھ اچھے ہی کام کر لیتا مگر دنیا کی تمناؤں میں پھنس کر میں نے کوئی بھی اچھا کام نہیں کیا۔

ہوں اس کوچے کے ہر ذرہ سے آگاہ اُدھر سے مدتوں آیا گیا ہوں

شاد کہتے ہیں کہ میں اپنے محبوب کی گلی سے واقف ہوں۔ میں اس کے گھر کے کونے کونے کو جانتا ہوں۔ اس کی گلی کی ہر چیز سے بہت اچھی طرح سے واقف ہوں کیونکہ ایک عرصہ سے یہاں آتا رہتا ہوں اور محبوب کے ہر راز سے واقف ہوں۔

دلِ مضطر سے پوچھ اے رونق بزم میں خود آیا نہیں لایا گیا ہوں

شاد کہتے ہیں کہ میرے دل کی بیقراری سے پوچھ لے کہ کیا میں یہاں اس مجلس میں خود آیا ہوں۔ دراصل میں یہاں خود نہیں آیا ہوں بلکہ مجھے یہاں لایا گیا ہے۔ میں اس دنیا کے حسن و رونق اور چہل پہل کو دیکھنے کیلئے ہرگز اپنی مرضی سے نہیں آیا ہوں بلکہ مجھے خدا نے پیدا کر کے اس دنیا کی رونق اور چہل پہل کو دیکھنے کیلئے یہاں لایا ہے۔ ویسے تو میں ہرگز اس قابل نہیں تھا۔

نہ تھا میں مقصد اعجاز مے کا　　بڑی مشکل سے منوایا گیا ہوں

شاؔد عظیم آبادی کہتے ہیں کہ مجھے شراب کی کیفیت کا بالکل کوئی علم نہ تھا۔ میں اس بات پر یقین ہی نہیں کرتا تھا کہ شراب پینے سے ایک قسم کا خمار پیدا ہوتا ہے۔ یہ شراب کیا چیز ہے میں اس بات سے بالکل بے خبر تھا۔ بڑی منتیں کر کے مجھے اس کا ئل بنایا گیا اور مجھے زبردستی شراب پینے کیلئے مجبور کیا گیا۔

کجا میں اور کجا یہ شاؔد دنیا　　کہاں سے کس جگہ لایا گیا ہوں

غزل کے اس مقطعے میں شاعر عظیم آبادی اپنے آپ سے مخاطب ہو کر کہتے ہیں ہی اے شاؔد! کہاں تو اور کہا تیری یہ دنیا۔ میں اس دنیا کا مقابلہ کرنے کے قابل نہیں ہوں۔ اصل میں اس دنیا کے انداز اور طریقے نرالے اور عجیب ہیں۔ میں تو ایک ہی جگہ پر تھا اور وہاں سے اٹھا کر مجھے اس دنیا میں لایا گیا۔

کتابی سوالات کے جوابات:

جواب۲:　اعجاز مے　بمعنی　معجزاتِ شراب

دل مضطر　بمعنی　بے قرار دل

رونق بزم　بمعنی　مجلس کی روشنی

مرزا اسداللہ خان غالبؔ کی حالات زندگی اور ادبی خدمات

نام مرزا اسداللہ خان المعروف بہ مرزا نوشہ۔ نجم الدولہ اور دبیر الملک خطابات تھے۔ تخلص پہلے اسد کرتے تھے پھر غالبؔ اختیار کیا۔ مرزا غالبؔ ۱۷۹۷ء میں بمقام آگرہ میں پیدا ہوئے۔ والد کا نام مرزا عبداللہ خان تھا۔ جب مرزا غالبؔ کے والد کا انتقال ہوا تو اس وقت مرزا کی عمر پانچ سال تھی۔ ان کا ایک بھائی بھی تھا جس نے جوانی کے دنوں میں دیوانگی کی حالت میں وفات پائی۔ غالبؔ نے اپنے والد کی وفات کے بعد اپنے چچا نصر اللہ بیگ کے یہاں پرورش پائی۔ غالبؔ جوانی کے آغاز میں شہر کے خوبصورت اور دلفریب جوانوں میں شمار ہوتے تھے۔ اور بڑھاپے میں بھی یہ حسن ان کے چہرے سے نمایا تھا۔ ان کے چہرے سے شرافت ٹپکتی تھی۔ بچپن کا زمانہ آگرہ میں گزرا اور شادی ہونے کے بعد دہلی میں سکونت اختیار کی۔ غالبؔ کے یاں سات بچے پیدا ہوئے تھے مگر کوئی بھی زندہ نہ رہا۔ آخری عمر میں صحت خراب تھی اور ۱۵ فروری ۱۸۶۹ء کو وفات پائی۔

مرزا غالبؔ اردو ادب کی ان ہستیوں میں سے ہیں جنہیں نظم و نثر دونوں میں غیر معمولی امتیاز حاصل ہے۔ غالبؔ کا کلام اردو شاعری کا بیش بہا خزانہ ہے۔ غالبؔ کے اشعار زندگی کے سچے ترجمان ہیں۔ عام بول چال کے الفاظ کو جس خوبصورتی سے اشعار کا لباس پہنایا ہے وہ کوئی اور شاعر نہ کر سکا۔ غالبؔ ہر شعر میں نئی بات بیان کرتے ہے۔

غزلیات مرزا غالبؔ

ابن مریم ہوا کرے کوئی میرے دکھ کی دوا کرے کوئی

ابن مریم سے مراد حضرت عیسیٰؑ یا مسیحا ہے جن کو اللہ نے مردوں کو زندہ کرنے کے معجزے سے نوازا تھا۔ غالبؔ کہتے ہیں کہ کوئی مسیحاؑ ہے تو ہوا کرے۔ میں تو جب جانوں جب میری کوئی دوا کرے یعنی میرے دل کو درد عشق سے نجات دلائے۔ حقیقتاً درد عشق کا مداوا مسیحاؑ بھی نہیں کرسکتا۔ اس درد کا مداوا محبوب کی نظر عنایب کے سوا کچھ نہیں۔ بقول سُدرشن فاکر

عشق کا زہر پی لیا فاکرؔ اب مسیحاؑ بھی کیا دوا دیگا

بک رہا ہوں جنوں میں کیا کیا کچھ کچھ نہ سمجھے خدا کرے کوئی

''کوئی'' سے مراد محبوب ہے۔ غالبؔ فرماتے ہس دیوانگی میں کیا کیا راز کی باتیں بکے جاتا ہوں خدا کرے کہ وہ ان کا مطلب کچھ نہ سمجھے۔ ورنہ راز فاش ہوجانے اور رسوا ہونے کی خدا جانے کیا سزا دیگا۔ جنون میں مجنون خود سے اور گردونواح سے بے خبر ہوتا ہے بقول شاعر

کیا کیا ہوا ہنگامے جنوں یہ نہیں معلوم کچھ ہوش جو آیا تو گریباں نہیں دیکھا

نہ سبو گر برا کہتے کوئی نہ کہو گر برا کرے کوئی

روک لو گر غلط چلے کوئی بخش دو گر خطا کرے کوئی

دونوں اشعار اخلاقی اور بالکل صاف ہیں۔ اسلئے تشریح خود کیجئے۔

کون ہے جو نہیں ہے حاجت مند　　کس کی حاجت روا کرے کوئی

مطلب یہ ہے کہ اگر کوئی کسی کی حاجت پوری نہ کر سکے تو شکایت نہیں کرنی چاہئے۔ یہ سمجھ لینا چاہئے کہ وہ بھی ہماری طرح اس چیز کی حاجت رکھتا ہوگا۔ بڑے بڑے بادشاہ امیر بیسیوں باتوں کے حاجت مند ہوتے ہیں۔غریبوں کا تو ذکر ہی کیا ہے۔

کیا کیا خضر نے سکندر سے　　اب کسے رہنما کرے کوئی

اس شعر میں تلمیح ہے۔خضر سکندر کو آبِ حیات کے چشمے پر لے گئے تھے۔مگر خود آب حیات پی لیا اور سکندر کو وہ ان آدمیوں کے سامنے لے گئے جنہوں نے یہ پانی تو پی لیا مگر بوجہ طولِ عمر ضعیف ونحیف ہو کر گوشت کے لوتھڑے رہ گئے تھے۔سکندر نے یہ عالم دیکھ کر پانی نہ پیا اور محروم رہ گیا۔ گویا خضر کی رہنمائی سے اسے کچھ حاصل نہ ہوا۔جب خضر کی رہنمائی بھروسے کے قابل ثابت نہیں ہوئی تو اب کس کی رہنمائی پر بھروسہ کیا جائے۔

جب توقع ہی اٹھ گئی غالبؔ　　کیوں کسی کا گلہ کرے کوئی

غزل کے مقطعے میں غالب کہتے ہیں کہ گلہ امید ہی پر ہوا کرتا ہے۔جب امید ہی نہ رہے اور مایوسی کا عالم ہو تو گلا کیسا۔اس حالت میں شکوہ شکائتیں باعث نفرت ودشمنی بن سکتی ہے۔

غزل نمبر۲:

کوئی امید بر نہیں آتی　　کوئی صورت نظر نہیں آتی

یعنی نہ کوئی آرزو پوری ہوتی ہے اور نہ ہی آرزو پوری ہونے کی صورت نظر آتی ہے۔کریں تو کیا کریں۔غالبؔ کہتے ہیں کہ ساری عمر امیدیں پوری ہونے کی امید میں ہی گزر گئی اور جان کندنی

تک اسی امید میں رہیں گے کہ شاید امید بر آئے۔ بقول خود (غالبؔ)

یہ نہ تھی ہماری قسمت کہ وصال یار ہوتا　　اگر اور جیتے رہتے یہی انتظار ہوتا
موت کا ایک دن معین ہے　　نیند کیوں رات بھر نہیں آتی

غالبؔ کہتے ہیں موت اپنے مقررہ وقت پر ضرور آئے گی۔ پھر ہم اس کے آنے کا انتظار کیوں کریں۔ موت کا ایک دن تو مقرر ہے۔ خوف و وحشت سے اس دن کے تقرر پر اثر نہیں پڑتا۔ پھر موت کے خوف سے رات بھر نیند کیوں نہیں آتی۔

آگے آتی تھی حالِ دل پہ ہنسی　　اب کسی بات پر نہیں آتی

غالبؔ کہتے ہیں کہ ایک دور ایسا بھی تھا کہ مجھے اپنے دل کی حالت پر ہنسی آتی تھی۔ مگر اب وہ حالت دل جس پر کبھی ہم ہنسا کرتے تھے افسردگی میں اس قدر غوطہ لگا رہی ہے کہ اب اپنے حال پر بھی ہنسی نہیں آتی۔ مطلب یہ ہے کہ اب رونے کے سوا اور کوئی کام نہیں۔

ہے کچھ ایسی ہی بات جو چپ ہوں　　ورنہ کیا بات کر نہیں آتی

یعنی میرا منہ نہ کھلواؤ میں بہت سی راز کی باتیں جانتا ہوں۔ انہیں کہہ دوں تو تمہاری رسوائی ہوگی اسی مصلحت سے خاموش ہوں۔ ورنہ کیا بات کرنی مجھے نہیں آتی

مرتے ہیں آرزو میں مرنے کی　　موت آتی ہے پر نہیں آتی

پہلا مرنا مجازی معنی رکھتا ہے اور دوسرا حقیقی۔ مجازی معنی سے کثرتِ شوق مراد ہے اور دوسرے مصرعہ کا مفہوم یہ ہے کہ مرتے ہیں مگر مر نہیں چکتے۔ غالبؔ کہتے ہیں کہ دل میں آرزوے موت اس قدر گہری ہو چکی ہے گویا موت کی شدت محسوس ہو جاتی ہیں۔ مگر حقیقت میں نہیں مرتا۔

کعبہ کس منہ سے جاؤ گے غالبؔ شرم تم کو مگر نہیں آتی

غالبؔ کہتے ہیں کہ ساری عمر گنہگاری اور شراب خوری میں گزری۔ اب کیا منہ لیکر کعبے جاؤ گے۔ شاید تم کو شرم نہیں آتی۔ دوسرا نکتہ اس میں یہ بھی ہے کہ مرزا غالبؔ شراب کے عادی تھے۔ اس لئے کہتے ہیں کہ تمہارے منہ سے شراب کی بو آتی ہے، کونسا منہ لے کر کعبے جاؤ گے، شرم کرو۔

نظیر اکبرآبادی کی حالات زندگی اور ادبی خدمات

نظر اکبرآبادی کا اصل نام ولی محمد اور تخلص نظیرؔ تھا۔ تاریخ پیدائش کے بارے میں اختلاف ہیں۔ غالباً ۱۷۴۴ء میں دہلی میں پیدا ہوئے۔ والد کا نام محمد فاروق تھا۔ ابتدائی تعلیم مولوی محمد کاظم اور ملا ولی سے حاصل کی۔ طبیعت میں رنگین مراجی اور آزاد روی تھی۔ احمد شاہ ابدالی کے حملے کے وقت دہلی چھوڑ کر آگرہ آ گئے اور پھر مستقل طور پر یہیں کے ہو رہے۔ نظیر کو شطرنج بازی، پتنگ بازی، اور اس طرح کے دوسرے مشاغل سے بڑی دلچسپی تھی۔ روزگار کیلئے مدرسی کا پیشہ اختیار کیا۔

شاعری میں اپنے زمانے کی عام روش سے ہٹ کر مختلف چیزوں کو اپنی شاعری کا موضوع بنایا۔ ان کی نظموں میں ''آدمی نامہ'' مکافات'' ''روٹی نامہ'' وغیرہ بہت مشہور ہیں۔ انہوں نے اپنی نظموں میں عوام کی زبان استعمال کی ہے اور عوامی موضوعات پر اظہار خیال کر کے عوامی شاعر ہونے کا اعزاز حاصل کیا ہے۔ آپ نے ۱۸۳۰ء میں انتقال کیا۔

''مفلسی'' از نظیر اکبر آبادی

بند(۱):

یہ بند نظیر اکبر آبادی کی نظم ''مفلسی'' سے لیا گیا ہے۔ اس بند میں نظیر مفلسی کی اور تلخی بیان کرتے ہوئے فرماتے ہیں کہ جب آدمی مفلسی میں مبتلا ہو جاتا ہے تو اس کی حیاتی ایک شدید عذاب بنکر رہ جاتی ہے۔ مفلسی یعنی غریبی اس کو ہر لمحہ ستاتی ہے۔ مفلسی کی وجہ سے وہ دن رات بھوکا اور پیاسا رہتا ہے۔ مفلسی کس قدر تلخ ہوتی ہے یہ وہ ہی شخص جانتا ہے جو مفلسی میں مبتلا ہو جاتا ہے۔ بقول ولی دکنی

مفلسی سب بہار کھوتی ہے
مرد کا اعتبار کھوتی ہے

بند۲:

اس بند میں نظیر کہتے ہیں کہ ایک مفلس انسان کے ذہن میں شان وشوکت کا تصور ہی نہیں ہوتا بلکہ اس کیلئے روٹی کا ایک ٹکڑا ہی معنی رکھتا ہے جس کو حاصل کرنے کیلئے وہ اپنی جان دے سکتا ہے وہ روٹی کو حاصل کرنے کیلئے ہی دوڑ دھوپ اور جدو جہد کرتا رہتا ہے۔ جس طرح کتے ہڈی کو حاصل کرنے کیلئے آپس میں لڑتے جھگڑتے ہیں اور اسی ہڈی پر ٹوٹ پڑتے ہیں اسی طرح مفلسی میں انسان ایک دوسرے کے ساتھ روٹی کیلئے لڑنے جھگڑنے کے لئے تیار ہوتے ہیں۔ غرض مفلسی انسان کی زندگی کو ابتر بناتی ہے۔

بند ۳:

اس بند میں نظیر کہتے ہیں کہ کسی آدمی کی زندگی جب مفلسی میں اسیر ہو جاتی ہے تو اس کی قدر لوگوں میں ابتر ہو جاتی ہے۔ کوئی اسے گدھا کہتا ہے تو کوئی بیل سمجھتا ہے۔ مفلسی کی وجہ سے آدمی کی حالت خستہ ہو جاتی ہے۔ پھٹے کپڑے، گندے اور لمبے بال، منہ خشک، پیلے دانت اور اس کے بدن پر میل جم جاتا ہے۔ غرض مفلسی کی وجہ سے مفلس انسان کا خدوخال قیدیوں جیسا بعض اوقات ان سے بھی بدتر ہو جاتا ہے۔

بند ۴:

اس بند میں نظیر کہتے ہیں کہ کوئی بھی شخص چاہے وہ بادشاہ ہو یا گدا (بھکاری) مفلسی کی بیماری میں مبتلا نہ ہو۔ خدا کسی بھی انسان کو مفلسی کی قید کا قیدی نہ بنائے۔ مفلسی چشم زدن میں صاحب عزت لوگوں کو فقیر بناتی ہیں۔ یعنی مفلسی کی وجہ سے مفلس میں متعدد خرابیاں اور خامیاں پیدا ہوتی ہیں جن کو بیان کرنے میں شاعر نظیر اکبر آبادی خود کو قاصر سمجھتا ہے۔ اور کہتے ہیں کہ مفلسی کی تلخیاں وہ ہی جانتا ہے جس کے دل کو مفلسی جلاتی ہے یعنی مفلس انسان۔

کتابی سوالات کے جوابات

جواب (۱) مفلسی سے انسان کی زندگی تلخیوں میں ڈوب جاتی ہیں۔ مفلس کی حیاتی ایک شدید عذاب بن کر رہ جاتی ہے۔ مفلسی کی وجہ سے وہ دن رات بھوکا اور پیاسا رہ جاتا ہے۔ اس کا حال پریشان اور کپڑے پھٹے ہوتے ہیں اور بدن پر میل جم جاتا ہے۔ لوگ مفلس کی بے عزتی کرتے ہیں۔ مفلسی شریفوں کو بھی ذلیل کرتی ہے۔

جواب(۲) مفلس کو ہر وقت فکرِ خوراک لاحق ہوتی ہے۔کس طرح اس کی پیاس اور بھوک کی تلفی ہو جائے اسی فکر میں رہتا ہے۔مفلس کے لئے روٹی کا ایک ٹکڑا ہی معنی رکھتا ہے جس کے حصول کیلئے وہ دوڑ دھوپ اور جدو جہد کرتا رہتا ہے۔

جواب(۳) حصولِ تشریح کیلئے بند سوم پر غور و خوذ کیجئے۔

محاورات

دل جلانا بمعنی سخت رنج دینا

جملہ: ہجر کے پردے کے زد میں بیٹھ کر میرا دل جلاتے ہو یا وہ مجھ سے ناراض رہ کر میرا دل جلانا سیکھ گیا۔

چھاتی پر مونگ ڈلنا بمعنی سزا دینا یا عذاب دینا

جملہ: وہ ترک تعلق کر کے چھاتی پر مونگ دلگیا۔

جان پر کھیلنا بمعنی ایسا کام کرنا جس میں جان جانے کا خطرہ ہو

جملہ: احمد نے اپنی جان پر کھیل کر حمید کو حادثے سے بچالیا۔

نظر لگنا بمعنی بری نظر کا اثر ہو جانا

جملہ:

یہ کس کی بری تم کو نظر لگ گئی ہے
بہاروں کے موسم میں مرجھا رہے ہو

رباعی کی تعریف

رباعی ربعہ سے مشتق ہے جس کے معنی چار کے ہیں۔صنفِ رباعی چار مصرعوں کی نظم ہوتی ہے۔اس کا پہلا، دوسرا اور چوتھا مصرعہ ہم قافیہ ہوتا ہے۔تیسرا مصرعہ بھی اسی قافئے میں ہوتو کوئی ہرج نہیں۔رباعی کے پہلے شعر کو مطلع نہیں کہتے بلکہ یہ کہا جاتا ہے کہ ہم قافیہ ہونے کی بناء پر رباعی کے پہلے دو مصرعے ''مصرّع'' ہوتے ہیں۔رباعی میں عام طور پر اس بات کا خیال رکھا جاتا ہے کہ اس کا تیسرا مصرعہ سب سے زیادہ پرزور ہو۔قافیوں کی پابندی اور بحر کی پابندی ایسی شرطیں ہیں جن کا پورا ہونا رباعی کیلئے لازمی ہے۔

رباعی کب وجود میں آئی یا سب سے پہلے رباعی کس نے لکھی؟ ان سوالات کے جوابات دستیاب نہیں ہیں۔بعض لوگ کہتے ہیں کہ رباعی کی ایجاد کا سہرا قدیم ایرانی شاعر رودؔکی (وفات ۹۴۰ء) کے سر ہے۔لیکن اس بات کا کوئی ثبوت نہیں۔رباعی میں عام طور پر حکیمانہ اور عاشقانہ مضامین ادا کئے جاتے ہیں۔چنانچہ رباعی میں اور طرح کے مضامین بھی نظم کئے گئے ہیں۔

رباعیات "میر ببر علی انیسؔ"

رباعی (۱):

یہ رباعی میر ببر علی انیسؔ کی قلمبند کی ہوئی ہے۔اس رباعی میں انیسؔ کہتے ہیں جس شخص کو خدا تعالیٰ اس دنیا میں عزت سے نوازتا ہے اس پر لازمی ہے کہ وہ اپنے دل میں عاجزی پیدا کریں۔اس کی فطرت میں شیرینی پیدا ہوتی ہے۔وہ فیاض خصلت کا مالک بن جاتا ہے۔اس کے برعکس وہ

اشخاص جو بے دماغ ہوتے ہیں ان کے دہان سے مدحِ خود کے جملات نکلتے ہیں۔یعنی وہ خود اپنے منہ میاں مٹھوں بنتے ہیں۔ایسے اشخاص کو میر انیسؔ نے خالی برتنوں سے مشابہہ کیا ہے۔جیسے خالی برتن ہمیشہ صدا دیتے ہیں ان کے دہان پر بھی کلمات مدح ہوتے ہیں۔

رباعی(۲):

یہ رباعی میر ببر علی انیسؔ کی قلمبند کی ہوئی ہے۔اس رباعی میں انیسؔ کہتے ہیں کہ بے شک والدین نے شفقت اور اخلاص کی حدوں کو پار کیا ہیں۔درحقیقت خالقِ کائنات اپنی مخلوق سے اس قدر محبت کرتا ہے جس کے مقابلہ میں اخلاص والدین ایک ذرہ برابر بھی نہیں۔غاضب اور رحیم اللہ تعلیٰ کے اسماء صفات ہیں۔مگر خالقِ کائنات نے دستِ رحمت اپنے غضب سے زیادہ پھیلائیں ہیں۔اس نے فرمان بردار بندوں کے لئے جنت انعام کے طور پر بنایا ہے۔اور جہنم نافرمان بندوں کیلئے۔غرض خالق نے اپنے آپ پر عدل واجب کیا ہے۔

رباعی(۳):

اس رباعی میں میر انیس کہتے ہیں کہ جب انسان دنیا فانی کو چ کر گے کا یعنی جب زیست بے وفائی کرے گی اور جب اس کو سپرد خاک کیا جائے گا تو وہاں یعنی قبر میں اس کو تنہا ہی رہنا ہوگا۔ وہاں خاک کے سوا کچھ بھی نہیں ہوگا۔نہ تکیہ اور نہ نچھونا ہوگا۔اس گوشۂ تنہائی میں نہ کوئی ہمدم اور نہ کوئی دوست ہوگا۔وہاں صرف تنہائی،تاریکی اور وحشت ہوگی۔

کتابی سوالات کے جوابات:

جواب ا) دنیا میں جن اشخاص کو خدا تعالیٰ عزت اور نعمتوں سے نوازتا ہیں وہ بزمی اور تواضع اختیار کرتے ہیں۔ ان کی طبیعت میں شیرینی پیدا ہوتی ہے وہ فیاض خصلت کے مالک بن جاتے ہیں۔

رباعیات جگ موہن لال رواںؔ

رباعی ا:

یہ رباعی جگ موہن لال رواںؔ کی قلمبند کی ہوئی ہے۔اس رباعی میں رواں کہتے ہیں کہ دنیا کی رنگینی انسان کو اپنی طرف مائل کرتی ہے۔ دنیا کی طرح یہ خوشیاں بھی عارضی ہیں۔ جو کچھ عرصہ تک ساتھ دیکر جدا ہو جاتی ہیں۔شاعر کے خیال میں وصعت پیدا ہوگئی ہے اور اس کو فنا ہونے کی فکر سے ہر ایک سامان عیش میں کلفت یعنی رنج نظر آنے لگا ہے۔

رباعی ۲:

اس رباعی میں رواںؔ کہتے ہیں کہ یہ دنیا فانی ہے یعنی ختم ہونے والی ہے۔ یہاں کی ہر شے کو ایک دن تباہ ہونا ہیں۔لیکن انسان لالچ اور خواہشات میں اس قدر ڈوب گیا ہے کہ اس کو دنیا بے ثبات نظر آنے لگی ہے اور وہ ترقی اور کامیابی کے پیچھے بھاگتا پھرتا ہے۔ رواںؔ کہتے ہیں کہ لوگ مرکر بھی زندہ رہنا چاہتے ہیں۔ متوفی کی قبر پر سنگ مزار رکھا جاتا ہے تاکہ اس کا نام موجود رہیں۔ انسان کو مرکر بھی زندگی کی امید رہتی ہے۔

رباعی ۳:

اس رباعی میں رواںؔ کہتے ہیں کہ میں کیا بتاؤں یہ زندگی کیا ہے۔ زندگی فنہ ہونے والی شے ہے۔ ہر ایک شخص کی زندگی تین مرحلوں سے گزرتی ہوئی آخر میں ختم ہو جاتی ہے۔ اور تیسرا مرحلہ

پیری ہے جو ایک بار آئے تو مرگ تک جانے کا نام ہی نہیں لیتی ۔اسی طرح زندگی ان مرحلوں سے گزرتی ہوئی فنا ہو جاتی ہے اور اس کو روک کر رکھنا کسی کے بس کی بات نہیں۔

کتابی سوالات:

جواب(۱) جواب کیلئے پہلی رباعی کا طالعہ کیجئے

جواب(۲) تیسری رباعی میں

بچپن کو پھولوں کی مہک سے

جوانی کو تیز ہوا سے اور

زندگی کا موجِ فضا سے تشبیہہ دی گئی ہے۔

خاکہ نگاری

خاکہ نگاری ایک ایسی صنف ادب ہے جس میں کسی شخص کی خصوصیات یا خامیاں پیش کی جاتی ہیں۔ایک خاکہ نگار کو کسی شخص کے حالات اور واقعات اس طرح پیش کرنے چاہئے کہ پڑھنے والا اس شخص کی عظمت سے واقف ہو۔خاکہ نگاری میں کسی کی شخصیت کی تصویر بالکل مختصر طریقے سے پیس کی جاتی ہے۔خاکہ نگاری سوانح حیات سے مختلف اور الگ ہے۔اس میں سوانح حیات کی طرح واقعات ترتیب کے ساتھ لکھے نہیں جاتے ہیں۔ایک خاکے میں ایک شخصیت کی خوبیاں جس طرح بیان کی جاتی ہیں اسی طرح اس کی خامیوں کو بھی نظر انداز نہیں کرنا چاہئے۔خاکہ نگار کو کسی بھی ذاتی عناد یا دشمنی کا پہلو مدنظر نہیں رکھنا چاہئے۔دراصل جدید خاکہ نگاری مختصر افسانے سے ملتا جلتا ہے۔خاکہ بھی ادب کی مقبول ترین صنف میں شامل ہے۔

خاکۂ حالی

کتابی سوالات کے جوابات:

جواب ۱) مولانا خالی ایک سچے وطن پرست اور قومی اتحاد کے علمبردار تھے۔آپ ہندو مسلمان اور سکھ کے ساتھ یکساں سلوک کرتے تھے۔آپ میں تعصب اور تنگ نظری کا نام و نشان نہ تھا۔آپ ہندو مسلمان سکھ اتحاد کے زبردست حامی تھے۔آپ کو بہت ہی پریشانی ہوتی تھی جب آپ کسی فرقہ دارانہ فساد کا واقعہ سنتے تھے۔وطن کی محبت آپ کا خاص موضوع رہا ہے۔وطن کی مٹی کو کافی عزیز سمجھتے تھے۔آپ ہمیشہ اور ہر وقت ایک سچے وطن پرست اور قومی اتحاد کے علمبردار رہے ہے۔

جواب ۲) مولانا حالی نے علمی میدان میں اپنی بساط کے موافق دو یادگاریں چھوڑی ہیں۔ ایک تو اپنے وطن میں یعنی پانی پت میں مدرسہ قائم کیا جو حالی ہائے سکول کے نام سے موسوم ہے اور ایک اورینٹل لائبریری قائم کی۔

(۴)

سوانح نگاری (حیات) میں پوری زندگی اور اس کی تفصیلات کا بیان ہوتا ہے۔خاکے میں ذاتی تاثرات بیان کئے جاتے ہیں اور شخصیت نگاری میں ذاتی تاثرات بیان کئے جاتے ہیں اور شخصیت نگاری میں ذاتی تاثرات اور دوسرے ذرائع سے حاصل کی ہوئی معلومات درج کی جاتی ہے۔یعنی بطورِ شخص ہم جو کچھ بھی جانتے ہیں اس کے بیان کو شخصیت نگاری کہتے ہیں۔

(۵)

بیان۱:

مولانا حالؔی شہرت اور خودنمائی پسند نہیں کرتے تھے۔

ثبوت:

مولانا حالؔی سے لوگ اپنا کلام سنانے کی فرمائش کرتے تھے وہ کسی نہ کسی طرح ٹال جاتے تھے اور اکثر یہ عذر پیش کرتے تھے کہ میرا حافظہ بہت کمزور ہے، اپنا لکھا بھی یاد نہیں رہتا۔

بیان۲:

مولانا حالؔی زبردست مہمان نواز تھے۔

ثبوت:

مولانا حالؔی مہمانوں کے آنے پر دلی مسرت حاصل کرتے تھے اور دل و جان سے ان کی خدمت کرتے تھے۔ آل انڈیا مسلم ایجوکیشنل کانفرنس کے مشیر مولوی انوار احمد ایک بار مولانا حالؔی سے ملنے پانی پت آئے۔ حالؔی نے ان کی مزاج پُرسی کے بعد کھانا کھلا کر بستر پر لٹا دیا۔ رات کے ایک بجے وہ اٹھ کر کمبل ہاتھوں میں لیکر ان کے بستر پر ڈال دی تا کہ سردی اور ٹھنڈ نہ لگے۔

بیان۳:

مولانا حالؔی بعض اوقات چھوٹوں کا بھی ادب کرتے تھے۔

ثبوت:

طالب علمی کے زمانے میں مولوی عبدالحق اور مولانا حمید الدین مولانا حالؔی سے ملنے علی گڑھ گئے۔ مولانا حالؔی ان دونوں کی عزت اور تعظیم کیلئے کھڑے ہو گئے۔

انشائیہ کی تعریف

انشائیہ کو انگریزی میں Essay کہتے ہیں۔ انشائیہ کی صنف اردو میں انگریزی سے آئی ہے۔ انشائیہ نگار بے تکلف اور غیر علمی انداز سے اپنی بات کہتا ہے۔ وہ اپنے دل کی باتیں اس میں بیان کرتے ہے۔ اپنے ذاتی تجربہ اور مشاہدہ کی بنیاد پر ہی اپنے تاثرات بیان کرتا ہے۔ انشائیہ مختصر ہوتا ہے۔ انشائیہ کیلئے تخیل یعنی خیال کا بلند ہونا لازمی ہے۔ انشائیہ کی اہم خصوصیت اختصار ہے۔ اس میں خیالات غیر منظّم طور پر پیش کئے جاتے ہیں۔ انشائیہ کسی ایک موضوع پر تحریر کیا جاتا ہے۔ انشائیہ میں طنز و مزاح کا عنصر بھی ملتا ہے۔ لیکن یہ اس کیلئے لازمی نہیں ہے۔ اردو میں سرسید، محمد حسین آزاد، عبدالحلیم شرر، فرحت اللہ بیگ، سجاد انصاری، رشید احمد صدیقی نے اعلیٰ معیار کے انشائیے لکھے ہیں۔

"خوشامد" از سرسید احمد خان

کتابی سوالات کے جوابات:

جواب (ا) خوشامد کو بدترین چیز اس لئے کہا جاتا ہے کیونکہ خوشامدی سے انسان ذہنی اور روحانی طور پر کمزور ہو جاتا ہے۔ خوشامد ایک تباہ کرنے والی بیماری کا نام ہے۔ اس سے ہماری عقل اندھی ہو جاتی ہے۔ خوشامد سے سچ اور جھوٹ میں کوئی فرق نہیں رہتا ہے۔ دھوکہ اور جھوٹ ہماری طبیعت پر غالب ہو جاتا ہے۔ جس کی خوشامد کی جائے یا جو خوشامدی کرتا ہے دونوں بے وقوف اور نالائق سمجھے جاتے ہیں اور دونوں جھوٹی تعریف کے عادی ہو جاتے ہیں۔

جواب۲) خوشامدی خطرناک بیماری کا دوسرا نام ہے۔خوشامدی ہمیشہ دھوکہ دہی کا عادی ہوتا ہے۔اور دھوکہ دیکر اپنا کام نکالتا ہے۔ایک خوشامدی میں جو خوبیاں موجود ہوتی ہیں وہ سب ختم ہو جاتی ہیں اور وہ ہمیشہ جھوٹی تعریف کرنے اور سننے کا عادی ہو جاتا ہے۔ خوشامدی ہمیشہ سُست اور کمزور رہتا ہے۔اور اس کی یاداشت بھی کمزور ہو جاتی ہے۔خوشامدی نہایت خودسر اور مغرور ہوتا ہے۔ وہ روحانی اور ذہنی طور پر نہایت کمزور ہوتا ہے۔

جواب۳) ''خوشامد'' سرسید احمد کان کا لکھا ہوا انشائیہ ہے۔ بقول سرسید احمد خان خوشامد ایک مہلک بیماری ہے۔انسان کے دل کی بیماریوں میں سے خوشامد بھی ایک بیماری ہے۔ اس کا اثر ایک انسان کے دل پر گہرا پڑتا ہے۔ پہلے ہم اپنی خوشامد خود ہی کرتے ہیں ۔پھر اس کی نوبت دوسروں تک آتی ہے۔خوشامدیوں کے فریب سے عقل اندھی ہوتی ہے۔خوشامد کرنے سے ایک انسان حق ،صداقت اور سچائی سے دور رہتا ہے۔ اور تمام تر خوبیوں سے محروم رہتا ہے۔خوشامد سے ایک انسان کی ذہانت اور قابلیت ختم ہو جاتی ہے۔خوشامد بدترین چیز ہے جو دونوں کو نقصان پہنچاتی ہے۔خوشامد سے اچھے اور برے کی کوئی تمیز نہیں رہتی۔

سرسید احمد خان کی حالات زندگی اور ادبی خدمات

سرسید احمد خان ۱۷۱۷ء میں دہلی میں پیدا ہوئے۔ان کے بزرگوں کو شاہی دربار میں رسائی حاصل تھی۔ان کی پرورش اور تربیت میں ان کی والدہ کا بڑا ہاتھ تھا۔ جب ملازمت کا وقت آیا تو سرسید احمد خان نے درباری تعلق پر انگریزی سرکار کی ملازمت کو ترجیح دی اور سررشتہ داری سے شروعات کر کے صدر امین کے عہدے تک پہنچے۔

۱۸۵۷ء کی بغاوت کے بعد وہ بسلسلۂ ملازمت بجنور میں مقیم تھے۔سارا ہنگامہ انہوں نے اپنی آنکھوں سے دیکھا اور اس میں انگریزوں کی حمایت کی۔ پھر انہوں نے ایک رسالہ ''لائل محمڈنز آف انڈیا'' کے تین پرچے نکالے۔اس میں یہ بتایا گیا تھا کہ مسلمان انگریزی سرکار کے بدخواہ نہیں ہیں۔

جب ان کا تبادلہ صدر امین کی احیثیت مراد آباد کو ہوگیا تو یہاں انہوں نے بے گناہ مسلمانوں کی جانیں بچائیں۔ یہاں انہوں نے ایک شفاخانہ اور ایک یتیم خانہ بھی قائم کیا اور ہندو مسلمانوں کی یکساں مدد کی۔اس کے بعد غازی پور میں انہوں نے سائنٹفک سوسائٹی قائم کی اور بہت سی کتابوں کا اردو میں ترجمہ کرایا۔

سرسید احمد خان نے مسلمانوں کیلئے جدید تعلیم کا بندوبست کیا۔علی گڑھ میں محمڈن کالج قائم کیا جو آج علی گڑھ مسلم یونیورسٹی کے نام سے موجود ہے۔ان کا اس سے بھی بڑا کارنامہ یہ ہے کہ انہوں نے مسلمانوں کی زندگی میں ایک انقلاب عظیم برپا کر دیا۔مسلمانوں کے اس محسن اور مرد مجاہد نے ۱۸۹۸ء میں وفات پائی۔

اردو ادب پر سرسید کا بڑا احسان ہے۔انہوں نے اردو نثر میں مدعا نگاری کی بنیاد ڈالی۔ انہوں نے اپنی بات کو دلیل کے ساتھ واضح الفاظ میں کہنا سکھایا۔اردو کو لفاظی اور بے ضا عبارت

آرائی سے نجات دلائی۔آج جو زبان، ہم لکھتے اور بولتے ہیں اس کی داغ بیل سرسید نے ڈالی تھی۔ نثر کی طرف انہوں نے خود توجہ کی لیکن وہ شاعر نہ تھے۔انہوں نے شعر کہے ضرور لیکن جلد ہی اندازہ ہوگیا کہ یہ ان کا میدان نہیں اسلئے اس کوچے سے جلد نکل آئے۔مختصر یہ کہ اردو نثر اور نظم دونوں سرسید کے احسان سے گراں بار ہیں۔

افسانہ "آسمان، پھول اور لہو" از نور شاہ

کتابی سوالات کے جوابات

جواب ۱:

دوکاندار لڑکے کو گڑیا اسلئے نہیں بیچتا تھا کیونکہ اس کے پاس موزوں خردہ (یعنی مناسب رقم) گڑیا کو خریدنے کیلئے نہیں تھی۔دوکاندار کے لئے ناممکن تھا کہ وہ لڑکے کو اس تھوڑی سی رقم کے عوض گڑیا بیچتا

جواب ۲:

لڑکے کے مطابق اس کی بہن کو وہ گڑیا بہت پسند آئے گی اور اسے پا کر خوش ہوگی۔چونکہ اس کی بہن دنیا فانی سے رحلت کر چکی تھی۔اور اس کی والدہ جان کندنی کی کشمکش میں الجھی تھی۔ معصومیت کے باعث لڑکے کو گمان تھا کہ وہ مطلوب شدہ گڑیا اپنی والدہ کے ہوتھوں اپنی بہن کو بھجواتا۔

جواب ۳:

چونکہ لڑکے کی بہن اس دنیا سے کوچ کر چکی تھی۔اور اس کی والدہ جان کندنی کی کشمکش میں الجھی تھی۔اس کے والد نے اسے کہا تھا کہ اس کی امی بھی آسمانوں میں اس کی بہن کے پاس جانے والی ہے۔اسلئے وہ اپنی والدہ کے ہاتھوں وہ مطلوب شدہ گڑیا اپنی دیدی کو بھیجنے والا تھا۔

جواب۴:

افسانہ ''آسمان پھول اور لہو'' میں موجود ''آنٹی'' کے کردار پر چند درج ذیل ہیں۔

الف) آنٹی کے قدم دوکان کے سامنے تھم گئے اور وہ بچے کا مشاہدہ کرنے لگی۔ یہ عمل اس کے جذباتِ خلوصِ اطفال کی عکاسی کرتا ہے۔

ب) آنٹی نے لڑکے کو اس کی مطلوب شدہ اشیاء دلوادئے۔ یہ عمل اس کے فیاض، ہمدرد اور مددگار ہونے کا بین ثبوت ہے۔

ج) وہ لڑکے کو خدا سے نا امید نہ ہونے کی اور اس پر بھروسہ رکھنے کی تلقین کر کے اپنی خدا پرست اور خداشناس ہونے کا ثبوت دیتی ہے۔

د) بقول نوشاہ (آنٹی) جب جب لوگوں کے دلوں میں نفرت کی آگ بھڑکتی ہے تو خلوص کے پھول جل کر راکھ ہو جاتے ہیں۔ یہ نور شاہ کا امن و آستی پسند ہونے کا اور دور اندیشی کا بین ثبوت ہے۔

ہ) نور شاہ تصوراً اس معصوم سے لڑکے کو آسمانوں کی جانب بھاگتے ہوئے جانا دیکھتی ہے۔ جو اس کے قوتِ متخیّلہ (تخیّل) کی پرواز کا پتہ دیتی ہے۔

جواب۵:

لڑکے نے اللہ سے دعا مانگی تھی کہ اسے اتنی رقم ملے جس سے وہ اپنی والدہ کے لئے پھول برنگ سفید اور اپنی بہن کیلئے گڑیا خرید سکے۔ اس کی یہ دعا بوساطت مصنف نور شاہ (آنٹی) قبول ہوگئی۔

جواب۶:

لڑکے کی والدہ (ماں) کا نام ''حلیمہ بی بی'' اور بہن کا نام ''خالدہ'' تھا۔

جواب ۷:

افسانہ ''آسمان پھول اور لہو'' عصری کرب اور حادثات وسانحات کی عکاسی کرتا ہے۔اس افسانے کے مشاہدے سے اس کا مرکزی لبِ لبات (ماحصل) یہ عیاں ہوتا ہے کہ اطفال بمشابۂ نود میدہ پھول عصری حادثات کے شکار ہو کر لہولہان ہو جاتے ہیں اور اس عارضی مسکن سے کوچ کر کے آسمانوں میں چلے جاتے ہیں۔گو بسبب اس افسانہ کا نام ''آسمان پھول اور لہو'' رکھا گیا۔

فانی بدایونی کی حالات زندگی اور ادبی خدمات

نام شوکت علی خان۔ پہلے شوکت اور بعد میں فانی تخلص رکھا۔۱۳ ستمبر ۱۸۷۹ کو بدایون میں پیدا ہوئے۔ابتعائی تعلیم مکتب میں حاصل کی۔۱۹۰۱ء میں بریلی کالج سے بی اے کیا اور پھر ملازمت کی۔کچھ عرصہ تک استاد کی حیثیت سے کام کرتے رہے اور ڈپٹی انسپکٹر مدارس بن گئے۔قانون کی تعلیم حاصل کرنے کیلئے مسلم یونیورسٹی علی گڑھ میں داخلہ لیا۔ایل ایل بی کی ڈگری حاصل کر کے وکالت کرتے رہے۔لیکن آپ کا دل وکالت میں نہیں لگا اور اس پیشے میں کامیاب نہ ہوئے۔ زندگی کے آخری دن پریشانی اور غربت میں گزرے۔۱۹۴۱ء کو آپ کا انتقال ہوا۔

فانی کا شمار اردو کے ممتاز غزل گو شعراء میں ہوتا ہے۔آپ کی شاعری اعلیٰ درجہ کی تھی۔آپ کے اشعاروں میں احساس کی شدت، خیال کی گہرائی اور درد کی شدت پائی جاتی ہے۔آپ کا موضوع غمِ حیات ہے۔دکھوں کی بنا پر فانی کو نا امیدی یعنی یاسیات کا رہنما کہا جاتا ہے۔

غزل فانی بدایونی

دنیا میری بلا جانے مہنگی ہے یا سستی ہے موت ملے تو مفت نہ لوں ہستی کی کیا ہستی ہے

غزل کے اس مطلع میں فانی بدایونی کہتے ہیں میں یہ نہیں جانتا کہ دنیا کیا ہے۔ اس کی اصلیت مجھے معلوم نہیں کہ دنیا سستی ہے یا مہنگی۔ شاعر دنیا کی قیمت نہیں جانتا۔ اس کی نظروں میں زندگی ایک ناپائیدار شے ہے۔ لیکن اتنا ضرور ہے کہ شاعر موت سے خوف زدہ ہے۔ شاعر موت سے اس قدر خوف زدہ ہے کہ اسے مفت بھی اگر ملے تو وہ لینے کیلئے تیار نہیں۔ غرض شاعر کی نظر میں زندگی کی کوئی قیمت نہیں اور وہ موت سے بھی خوف زدہ ہے۔

آبادی بھی دیکھی ہے ویرانے بھی دیکھے ہے جو اجڑے اور پھر نہ بسے دل وہ نرالی بستی ہے

فانی کہتے ہیں کہ میں نے آبادیوں کو بستے ہوئے بھی دیکھا ہے اور ان کو ویران ہوتے ہوئے بھی دیکھا ہے۔ آبادیاں تباہ ہونے کے بعد پھر آباد ہوتی ہے۔ یعنی ویرانے بھی آباد ہوتے ہوئے دیکھے ہیں۔ لیکن دل جو ایک بار اجڑ رجائے تو پھر کبھی بسنے کا نام ہی نہیں لیتا ہے۔ دل کی بستی ایک عجیب سی بستی ہے جو ایک رار اجڑ جائے تو پھر بسنے کا نام ہی نہیں لیتی۔

جان سی شے بک جاتی ہے ایک نظر کے بدلے میں آگے مرضی گاہک کی ان داموں تو سستی ہے

فانی کہتے ہیں کہ میں اپنے محبوب کی ایک نظر کے بدلے میں اپنی جان کی بازی لگانا چاہتا ہوں۔ میں اپنی جان اپنے محبوب کی ایک نظر کے بدلے میں بیچنا چاہتا ہوں۔ اب خریدار یعنی معشوق کی مرضی ہے کہ کیا وہ میری جان اتنے سستے داموں میں خریدنے کیلئے تیار ہے کہ نہیں۔

جگ سوتا ہے تیرے بغیر آنکھوں کا کیا حال ہوا جب بھی دنیا بستی تھی اب بھی دنیا بستی ہے

فانؔی محبوب سے کہتے ہیں کہ تیرے بغیر میری دنیا ویران ہے۔ تیرے بغیر میرا دل ویران ہے۔ دراصل دنیا اس وقت بھی بستی تھی اور اب بھی بسی ہوئی ہے۔ لیکن محبوب کی جدائی کی وجہ سے میری زندگی ویران ہوگئی۔ دنیا کی رونق اور چہل پہل میں میرے غمزدہ دل سے کوئی فرق نہیں پڑتا۔ دنیا کا کاروبار چلتا رہتا ہے۔ اسے اس بات کی فکر نہیں کہ کوئی غمزدہ ہے یا کوئی خوش ہے۔

آنسوں تھے جو خشک ہوئے ہے کہ اُمڈا آتا ہے دل پہ گھٹا سی چھائی ہے کھلتی ہے نہ برستی ہے

فانؔی کہتے ہے کہ محبوب کی یاد میں اب میری آنکھوں کے آنسوں بھی خشک ہوگئے ہیں۔ ان آنکھوں میں اب آنسوں بھی نہیں آتے ہیں اور دل کا یہ حال ہے کہ وہ لبریز ہوا ہے۔ میرے دل پر ایک ایسی گھٹا یعنی بادل چھائے ہوئے ہیں جو نہ صاف ہونے کا نام لیتے ہیں اور نہ ہی برستے ہیں۔ ان بادلوں نے میرے دل کو بری طرح سے گھیر لیا ہے۔

دل کا اجڑنا سہل سہی بسنا سہل نہیں ظالم بستی بسنا کھیل نہیں بستے بستے بستی ہے

فانؔی کہتے ہیں کہ دل آسانی سے اجڑ جاتے ہیں لیکن مشکل سے پھر بستے ہیں۔ اجڑی ہوئی بستی کو پھر سے بس جانے میں کافی وقت لگتا ہے۔ یعنی جب ایک بار بستی تباہ ہوجاتی ہے تو اس کے بسنے میں کافی وقت اور دیر لگ جاتی ہے۔

فانؔی! جس میں آنسوں کیا دل کا لہو کا کال نہ تھا ہائے! وہ آنکھ اب پانی کی دو بوندوں کو ترستی ہے

غزل کے اس مقطعے میں فانؔی اپنے آپ سے مخاطب ہوکر کہتے ہیں اے فانؔی ایک وقت ایسا بھی تھا جب تو اپنے محبوب کی یاد میں خون کے آنسوں بہایا کرتا تھا۔ تمہاری آنکھیں خون کے آنسوں رویا کرتی تھی لیکن افسوس اب وہی آنکھیں خشک ہوگئی ہیں۔ اب ان آنکھوں میں آنسوں

ہی نہیں ہیں اب وہی آنکھیں دو آنسوؤں کے قطروں کیلئے ترستی ہے۔

کتابی سوالات کے جوابات

جواب ۱:

شاعر محبوب کا اس قدر شیدائی ہے کہ اسے اپنے محبوب کی نظر عنایت سے ہی چین ملتا ہے۔ اور خوشی حاصل ہوتی ہے۔ شاعر کی نظر میں سکونِ قلب محبوب کی نظر عنایت سے حاصل ہوتا ہے۔ اگر ایک عاشق کے نصیب میں اس کے محبوب کی نظر کرم نہ ہو تو اس کی زندگی تباہ و برباد ہو جاتی ہے۔ محبوب کی نظر عنایت حاصل کرنے کیلئے ایک عاشق اپنی جان تو کیا دین و ایمان بھی کھو بیٹھا ہے۔ لہٰذا شاعر محبوب کی ایک نظر کے بدلے میں اپنی جان جیسی قیمتی شے کو بھی فروخت کرنا چاہتا ہے۔ بقولِ شاعر

حشر بھی تو ہو چکا رخ سے نہیں ہٹتی نقاب
حد بھی آخر کچھ ہے کب تک کوئی دیوانا رہے

جواب ۲:

بے شبہ دل کی بستی ایک نرالی یعنی انوکھی بستی ہے۔ اس لئے کہ دل اگر ایک بار اجڑ جائے تو پھر کبھی بسنے کا نام ہی نہیں لیتا ہے۔ آبادیاں اگر ایک بار ویران ہو جاتی ہے تو وہ آباد بھی ہو جاتی ہیں لیکن جب آئینہ دل میں ایک بار خراش آجاتی ہے۔ تو پھر اس کا جڑنا غیر ممکن ہو جاتا ہے۔ دل کی بیقراری کبھی بھی قرار میں تبدیل نہیں ہوتی۔ لاکھ کوششوں کے بعد بھی دل کا ویران آباد نہیں ہوتا۔ بقول غالبؔ

پھر کچھ اک دل کو بے قراری ہے
سینا جو آئے زخم کاری ہے

عرشؔ صہبائی کی حالاتِ زندگی اور ادبی خدمات

آپ کا اصلی نام ہنس راج ابرول اور تخلص عرشؔ ہے۔ ۶ ستمبر ۱۹۳۰ء کو اکھنور تحصیل کے گاؤں پلائی میں پیدا ہوئے۔ میٹرک پاس کر کے ریڈیو کشمیر جموں میں ملازمت کی۔ آپ نے شعری زندگی کا آغاز ۱۹۴۷ء میں کیا۔ اردو کے مشہور شاعر جوشؔ ملسیانی کے شاگرد تھے۔ آپ نے زیادہ تر غزلیں لکھی ہیں۔ شعری مجموعوں کے نام یوں ہیں۔ شکست جام، شگفت گل اور صلیب، شگفت کل کیلئے ریاستی اکادمی کی طرف سے انعام بھی ملا۔ آپ کی نثری تصانیف میں انجم کدہ، جانے پہچانے لوگ اور کئی اردو شعراء کے تزکرہ شامل ہیں۔ عرشؔ صہبائی کی زبان صاف اور سادہ اور رواں ہے۔ اکثر چھوٹی چھوٹی بحروں کا انتخاب کرتے ہیں۔ سادگی ان کے کلام کا خاص جوہر ہے۔

غزلیات

غزل(۱):

کون سا وہ زخم تھا جو تر و تازہ نہ تھا　　زندگی میں اتنے غم تھے جن کا اندازہ نہ تھا

غزل اس کے مطلع میں عرش صہبائی کہتے ہیں کہ مجھے محبوب کی جدائی کی وجہ سے غموں اور پریشانیوں کے سوا کچھ بھی نہیں ملا جس کی وجہ سے میں مجروح یعنی زخمی ہو گیا ہوں اور میرے دل میں بے شمار زخم ہو گئے ہیں۔ ایسا دکھائی دیتا ہے کہ ہر زخم نیا اور تازہ ہے۔ زندگی میں اتنے غم ملے ہیں جن کا اندازہ اور شمار ہی نہیں۔

ہم نکل سکتے بھی تو کیوں کر حصارِ ذات سے　　صرف دیوار ہی دیوار تھیں دروازہ نہ تھا

عرشؔ کہتے ہیں کہ ہماری روح جسم کی چار دیواری کے اندر قید ہوئی ہے۔ جسم کی دیواروں نے روح کو قید کر کے رکھا ہے۔ اس روح کے اردگرد صرف دیواریں ہی دیواریں

ہیں۔ نکلنے کیلئے کوئی بھی دروازہ نہیں ہے۔ روح کا اس چاردیواری سے باہر نکلنا صرف خدا تعالیٰ کے ہاتھ میں ہے۔ ہمارے ہاتھ تو کچھ بھی نہیں۔

اس کی آنکھوں سے نمایا تھی محبت کی چمک　　اس کے چہرے پر نئی تہذیب غازہ نہ تھا

عرشؔ کہتے ہیں کہ میرے محبوب کی آنکھوں میں محبت تھی۔ شاعر کو محبوب کی محبت سب سے زیادہ پاکیزہ نظر آتی ہے۔ اس کے چہرے کی سادگی بدلتیہوئی تہذیب سے ذرا سا بھی متاثر نہ ہوئی یعنی تہذیب کے باوجود بھی میرے محبوب کے چہرے پر خوش اخلاقی کے آثار اور نشان تھے۔

عرش ان کی جھیل کا اس میں کیا قصور　　ڈوبنے والوں کو گہروائی کا اندازہ نہ تھا

غزلؔ کے اس مقطعے میں عرشؔ اپنے آپ سے مخاطب ہوکر کہتے ہیں کہ میرے محبوب کی آنکھیں جھیل جیسے گہری ہیں۔ جو بھی ان کی طرف دیکھتا ہے وہ گہرائی میں ڈوب جاتا ہے۔ اس میں میرے محبوب کی آنکھوں کا کوئی بھی قصور نہیں بلکہ ڈوبنے والے کا قصور ہے کیونکہ ان کو گہرائی کا کوئی اندازہ یعنی علم نہ تھا۔

غزل(۲):

ہر ایک رنگ میں کاٹیں کے سزا ہی یہی　　یہ زندگی کسی مفلس کی بددعا ہی سہی

عرشؔ اس مطلع میں کہتے ہیں کہ میری زندگی کی مثال ایک غریب آدمی کی ہے۔ جس طرح ایک غریب آدمی اپنی زندگی پریشانیوں میں گزارتا ہے اور سوچتا ہے کہ غریبی اس کو خدا تعالیٰ کی طرف سے بطور سزا مل رہی ہے۔ شاعر اب یہ زندگی جس طرح سے بھی کاٹے چاہے سزا کے طور پر یا پریشانیوں میں۔ یہ زندگی ضروری گزارنی ہے۔

نہ اس کو بھول کہ میں نے تجھے کیا تخلیق　　یہ اور بات ہے تو وقت کا خدا ہی سہی

عرشؔ کہتے ہیں خدا تعالیٰ نے انسان کو پیدا کیا۔ وہی سب کو پیدا کرنے والا ہے۔ یہ اور بات ہے کہ انسان وقت کا خدا بن گیا ہے۔ وہ مختلف چیزیں ایجاد کر کے بڑا بن گیا ہے۔ اور اپنے آپ کو خدا تصور کرتا ہے۔ اور وہ بھول گیا ہے کہ اس کا خالق خدا ہے۔

یہی بہت ہے کہ مجھ پر تری توجہ ہے　　تری نگاہ کا اندازہ دوسرا ہی سہی

عرشؔ اس شعر میں محبوب سے مخاطب ہو کر کہتے ہیں کہ اے ماحبوب! تمہاری توجہ تو میری طرف ہے اگر چہ تمہاری نظر کا اندازہ دوسرا ہی سہی یعنی اگر چہ تو مجھ سے ناراض ہی ہے گویا ان کی نظروں میں محبت ہی نہیں ہے پھر بھی میرے لئے یہ کافی ہے کہ آپ کی توجہ تو میری طرف ہے۔

وہ میری روح میں تحلیل ہو چکا ہے عرشؔ　　اگر وہ مجھ سے جدا ہے چلو جدا ہی سہی

عرشؔ اپنے آپ سے مخاطب ہو کر کہتے ہیں اے عرشؔ! میرا محبوب میری روح کا حصہ بن گیا ہے۔ پھر بھی اگر وہ مجھ سے ظاہری طور پر جدا ہے تو جدا ہی سہی۔ مجھے اس کا کائی افسوس نہیں ہے۔ کیونکہ میرا محبوب میری روح میں بسا ہوا ہے۔

کتابی سوالات کے جوابات

جواب۲ شاعر حصارِ ذات سے نہ نکل سکنے کی یہ وجہ بتاتے ہیں کہ روح جسم کی چار دیواری میں قید ہوئی ہے اور یہ روح اپنی مرضی سے باہر نہیں نکل سکتی بلکہ یہ سب کچھ خدا تعالیٰ کے ہاتھ ہے۔ دوسرے یہ کہ جب انسان اپنے اردگرد پھیلے ماحول کو پسند نہ کرنے کی وجہ سے بدل نہیں سکتا تو اس سے فرار حاصل کرنے کیلئے وہ اپنے آپ میں کھو جاتا ہے۔ پھر اردگرد ہونے والے ناپسندیدہ واقعات اُسے متاثر نہیں کرتے کیونکہ وہ اپنی ذات میں کھو چکا ہوتا ہے۔

شبیب رضوی کی حالات زندگی اور ادبی خدمات

شبیب رضوی ۲۵ جون ۱۹۳۵ء کو اتر پردیش میں پیدا ہوئے۔ آپ کے والد کا نام سید مواعظ حسین رضوی تھا۔ بہت کم عمری میں باپ کا سایہ سر سے اُٹھ گیا۔ دینی تعلیم گھر پر ہی والد سے حاصل کی۔ تعلیم کا آغاز رید پور کے مرکز العلوم سے کیا۔ بعد میں عربی و فارسی، بوڈ سے عربی میں مولوی، عالم اور فاضل تفسیر کے اور فارسی میں منشی اور کامل کے امتحانات پاس کئے۔ جامعیہ سلطانیہ لکھنؤ سے سندالا فاضل اور صدالا فاضل اسناد بھی حاصل کی۔ طبیبہ کالج لکھنؤ سے طب کی سند حاصل کی۔ ۱۹۶۳ء میں گورنمنٹ طبیہ کالج سرینگر میں ملازمت شروع کی۔ گھر کے ادبی ماحول کی وجہ سے آپ شعر کہنے پر مجبور ہو گئے۔ مرثیہ، نعت، سلام اور منقبت لکھنا شروع کیا۔ غزلیں اور رباعیاں بھی لکھی ہیں۔ آپ نے بچوں کیلئے اچھی اچھی نظمیں بھی لکھی ہیں۔ آپ کا ایک مختصر مجموعہ کلام ''آتش چنار'' ۱۹۶۹ء میں شائع ہوا۔ آپ کے کلام میں کلاسیکی رچاو کے ساتھ ساتھ جدید طرز اظہار کی بھی جھلکیاں ملتی ہیں۔ لہجے کی متانت، اسلوب کی سادگی اخلاقی

اور تہذیبی سطح آپ کی شاعری کی منفرد خصوصیات ہیں۔

غزلیات شبیب رضوی

غزل:

کتاب بند سہی حرف تر کھلا رکھنا مباحثے کا ہمیشہ ہی در کھلا رکھنا

شبیب رضوی اپنے محبوب سے مخاطب ہو کر کہتے ہیں کہ تم بے شک اپنی کتاب بند رکھنا یعنی تم بے شک مجھے اپنے دل سے نکال دو مجھے کوئی افسوس نہیں ہوگا لیکن بات چیت کا سلسلہ جاری رکھنا۔ بحث و مباحثہ کا در ہمیشہ کھلا رکھنا کیونکہ بات چیت کے ذریعہ سے آپس میں تبادلۂ خیال کا سلسلہ جاری رہتا ہے۔اس طرح ایک دوسرے سے اظہار کا موقعہ ملتا ہے۔

سکوت شب سے بھی اکتا کے لوٹ سکتا ہوں میں کہہ کے آیا ہوں بچوں سے گھر کھلا رکھنا

شبیب کہتے ہیں کہ ہوسکتا ہے کہ میں رات کی تنہائی اور اندھیرے سے گھبرا کر گھر واپس آجاؤں کیونکہ میرے اوپر غموں کا پہاڑ آپڑا ہے۔لہٰذا میں نے بچوں سے دروازہ کھلا رکھنے کو کہا ہے تاکہ جب بھی میں گھر واپس آجاؤں گا تو کوئی تکلیف اور پریشانی نہ ہونے پائے۔

ہماری شرط کہ ہم پر ہو سایۂ رحمت تمہاری ضد ہے کہ کوفے میں سر کھلا رکھنا

شبیب کہتے ہیں کہ ہماری ضد یعنی شرط یہ ہے کہ ہم پر رحمت کا سایہ ہو اور ہمارے تمام گناہ معاف ہوں لیکن محبوب کی ضد ہے کہ حضرت امام حسینؓ کے غم میں کوفہ میں ننگے سر چلنا تاکہ ہمارے غموں کا اظہار بھرپور طریقے سے ہوجائے۔

شکستگی ہوئی ظاہر تو موت لازم ہے کھلی ہواؤں کے دھار بے پر کھلا رکھنا

شبیب کہتے ہیں کہ جب ایک آدمی اپنی ہار مانتا ہے تو اس کی ذہنی طور پر موت واقع ہوتی

ہے۔غموں اور پریشانیوں سے تنگ آ کر وہ ہارا اور شکست کا دروازہ ہلاتا ہے۔مگر اس کو کبھی بھی ہمت ہارنی نہیں چاہیئے۔جس طرح ایک پرندہ ہواؤں میں اڑتے وقت اپنے پر کھلے رکھ کر پیچھے کی طرف دھکیل دیتا ہے اور آگے اڑتا ہے۔اسی طرح ایک انسان کو پریشانی اور غموں کا مقابلہ کر کے آگے ہی آگے بڑھنا چاہیئے۔

کسی کا ہاتھ بڑھے یا کھچے اسکا نصیب ہمارا فرض ہے دست، ہنر کھلا رکھنا

شبیبؔ کہتے ہیں کہ یہ تو اپنی اپنی قسمت ہے کہ کسی کا ہاتھ ترقی کی راہ پر آگے بڑھے یا پیچھے چلا جائے لیکن ہمارا یہ فرض بنتا ہے کہ ہم اپنا ہنرمند ہاتھ ہر وقت کھلا رکھے۔اپنی طرف سے ہم ہر وقت یہ کوشش کریں گے کہ ہم دوسروں کو ہنر اور کام سکھاتے جائینگے۔اس کا فائدہ کوئی اٹھائے یا نہ اٹھائے یہ اس کا مقدر ہے۔

غزل(۲)

کتنی بھوکی ہے کتنی پیاسی ہے زندگی دشت کربلا سی ہے

شبیبؔ کہتے ہیں کہ ہماری زندگی کتنی بھوکی اور پیاسی ہے اس کا اندازہ ہم ہی لگا سکتے ہیں۔اصل میں ہماری زندگی کربلا کے ریگستان سی ہے جو سخت مصیبت کی جگہ ہے۔ہم پیاسی، بھوکی اور پریشانی کی زندگی گزار رہے ہیں۔

سب گئے شمع دل جلائے ہوئے خیمہ خیمہ بہت اداسی ہے

شبیبؔ کہتے ہیں کہ میدان کربلا میں سب شہید ہو گئے۔یہاں تک کہ حضرت حسینؓ اور آپؓ کے ساتھی جب شہید ہوئے تو ہر ایک خیمہ میں اداسی چھا گئی۔حضرت حسینؓ اور آپؓ کے ساتھی جب شہید ہوئے تو ہر ایک خیمہ میں ویرانی اور اداسی چھا گئی۔

اس نے کتنی لطیف کہی خود شناسی خدا شناسی ہے

شبیبؔ کہتے ہیں کہ کسی نے خوب اچھی بات کہی ہے کہ خود کا پہچاننا خدا کو پہچاننے کے برابر ہے۔ جب ایک آدمی اپنے آپ کو پہچان لے کہ وہ کہا ہے۔ وہ اس دنیا میں کس لئے آیا تو اسے خود بخود خدائی دکھائی دے گی۔ اسے ہر ذرہ میں خدا کے جلوے نظر آئینگے۔

پھیل جائے تو اک کتاب بنے بات کہنے میں خود ذرا سی ہے

شبیبؔ کہتے ہیں کہ کوئی بات جو کہنے میں ذرا سی یعنی معمولی سی لگتی ہے۔ اگر وہ بات حقیقت میں پھیل جائے یعنی اس بات کا تذکرہ اچھی طرح سے کیا جائے تو ایک پوری کتاب بن سکتی ہے۔

زندگی خودکشی نہ کرلے کہیں ہر تمنّا خفا سی ہے

شبیبؔ کہتے ہیں اس دنیا میں میری ایک بھی آرزو پوری نہیں ہوئی ہے۔ اور نہ ہی میری کوئی دعا قبول ہوئی ہے۔ میری زندگی میں پریشانیوں اور دکھوں کے سوا کچھ بھی نہیں رہا ہے۔ ان حالات کو مدنظر رکھ کر میری زندگی کہیں خودکشی کرنے پر مجبور نہ ہوجائے اور میں اس زندگی سے ہاتھ دھو بیٹھوں گا۔

کتابی سوالات کے جوابات (شبیبؔ رضوی)

جواب (ا) درج ذیل اشعار میں کربلا کے واقعہ کی طرف اشارہ کیا گیا ہے۔

ا) ہماری شرط کہ ہم پر ہو سایۂ رحمت تمہاری ضد ہے کہ کوفے میں سر کھلا رکھنا

ب) کتنی بھوکی ہے کتنی پیاسی ہے زندگی دشتِ کربلا سی ہے

ج) سب گئے شمع دل جلائے ہوئے خیمہ خیمہ بہت اداسی ہے

جواب۲) شاعر دنیا کے شور وغل سے اکتا کر رات کی خاموشی اور تنہائی کی تلاش میں نکل گیا ہے۔ ایسا بھی ہوسکتا ہے کہ شاعر رات کی خاموشی سے گھبرا کر گھر واپس آجائے۔لہٰذا وہ اپنے بچوں کا تاکید کر چکا ہے کہ وہ گھر کا دروازہ کھلا رکھیں تاکہ جب بھی شاعر گھر واپس آجائے تو اس کو کوئی تکلیف اور پریشانی نہ ہونے پائے۔ اگر اس وقت بھی گھر کا دروازہ بند ہوگا تو وہ کہاں جائے گا۔

جواب۳) شاعر شبیبؔ اس شعر میں واقعہ کربلا کی طرف اشارہ کرتے ہے۔کربلا کے میدان میں حضرت حسینؓ اور آپؓ کے ساتھی۔ ماہ محرم میں یزیدی فوجوں سے لڑتے لڑتے شہید ہوگئے۔قافلہ اور یزیدی فوجوں کے درمیان حق اور باطل میں لڑائی ہوئی۔ شہادت پانے کے بعد حضرت حسینؓ کا سرِ مبارک آپؓ کے جسم مبارک سے الگ کر دیا گیا اور اونٹ پر رکھ کر حضرت زینبؓ، حضرت شہر بانوؓ اور قافلہ حسینی کے باقی زندہ افراد کو فوج لیکر کربلا سے کوفہ کی طرف روانہ ہوئے۔ یہ قافلہ کوفے کے بازاروں میں پہنچا۔آگے آگے یزیدی فوج اور اس کے بعد باقی اہل بیت تھے۔ حضرت زینبؓ اور حضرت شہر بانوؓ کے دست مبارک باندھے ہوئے تھے اور سرِ مبارک ننگے تھے۔آنکھیں نیچے تھیں تاکہ کوئی غیر ان کی طرف نہ دیکھ سکے۔

"نظم اولوالعزمی" (از محمد حسین آزاد)

ہے سامنے کھلا ہوا میداں چلے چلو　　باغِ مراد ہے ثمر افشاں چلے چلو
دریا ہو بیچ میں کہ بیا باں چلے چلو　　ہمیت یہ کہہ رہی ہے کھڑی ہاں چلے چلو
چلنا ہی مصلحت ہے میری جاں چلے چلو

شاعر محمد حسین آزاد ان اشعار میں نوجوان نسل سے مخاطب ہو کر کہتے ہیں کہ اے نوجوانو! آپ کے سامنے ایک کھلا ہوا میدان پڑا ہوا ہے۔ تم اس میدان میں آگے ہی آگے بڑھتے جاؤ اور اس کو پار کرتے رہو۔ تمہارے پاس ایک بہت بڑی زندگی پڑی ہوئی ہیں اور اس زندگی میں تم کو بہت سی تمنّائیں اور امیدیں پوری کرنی ہیں۔ اس باغ کی جتنی آبیاری کرتے رہو گے جتنی محنت تم اپنی زندگی میں کرتے رہو گے اتنے ہی پھل پاؤ گے۔ چاہے اس زندگی میں تم کو مصیبتوں اور تکالیف کا سامنا ہی کیوں نہ کرنا پڑے تم ہمت سے کام لو اور آگے ہی آگے بڑھتے جاؤ۔ اس زندگی کے میدان میں تم کو دریا اور صحراء نظر آئیں گے تم ہمت کر کے ان کو پار کرو۔

ہمت کے شہسوار جو گھوڑے اٹھائیں گے　　دشمن فلک بھی ہوں گے تو سر جھکائیں گے
طوفان بلبلوں کی طرح بیٹھ جائیں گے　　نیکی کا زور اٹھ کے بدی کو دنائیں گے
بیٹھو نہ تم مگر کسی عنواں چلے چلو

ان اشعار میں آزاد کہتے ہیں کہ جو لوگ بہادر ہوتے ہیں وہ گھوڑے پر بیٹھ کر سب سے آگے اپنا گھوڑا لے جاتے ہیں۔ اگر ان کے دشمن آسمان کے ساتھ باتیں کرنے والے ہونگے اور ان سے زیادہ طاقتور بھی ہوں گے تو انہیں کوئی فرق نہیں پڑے گا کیونکہ پانی کے بلبلے تھوڑی دیر کے بعد ختم ہوتے ہیں۔ اسی طرح تمہارے مضبوط ارادوں اور حوصلوں سے تمہارے دشمن بھی تمہارے سامنے سر جھکائیں گے اور مٹ کر ختم ہوں گے کیونکہ نیکی کے سامنے برائی ختم ہوتی

ہے۔اور آخر کار نیکی کی جیت ہوتی ہے۔لہٰذا اے نوجوانو! تم بے کار مت بیٹھو۔آگے ہی آگے بڑھتے جاؤ اور کامیابی تمہارے قدم چومے گی۔

رکھو رفاہِ قوم پہ اپنا مدار تم　　اور جو کبھی صلے کے نہ امید وار تم
عزت خدا جو دیوے تو پھر ہو خوار تم　　دورخ کو آبِ فخر سے رنگِ بہار تم
گلشن میں ہوکے باد بہاراں چلے چلو

شاعر کہتے ہیں کہ اے نوجوانو! تم ہر وقت اپنے قوم کی بھلائی کیلئے محنت کرتے رہو کیونکہ قوم کی بھلائی کا دارومدار صرف تم لوگوں کے اوپر ہے۔اس نیک کام کے بدلے میں کبھی بھی کسی معاوضے اور لالچ کی امید نہ رکھو۔اس نیک کام کے بدلے میں کبھی بھی انعام کے امیدوار نہ رہو۔اس اصول پر چلنے سے خدا تم کو عزت دے گا پھر تم شان سے کہو گے کہ ہم عزت کی زندگی گزار رہے ہیں۔اپنی زندگی بہاروں کے رنگ میں رنگ دو بالکل اسی طرح جس طرح موسم بہار میں تازہ ہوائیں پھولوں میں رنگ بھر دیتی ہیں۔

آؤ سفید و سیاہ کا فعل حساب ہے　　چمکایا چہرہ صبح نے با آب و تاب ہے
ظلمت پہ نور ہونے لگا فتحیاب ہے　　اورشب کے پیچھے تیغ بہ کف آفتاب ہے
تم بھی ہو آفتاب در خشاں چلے چلو

ان اشعار میں محمد حسین آزاد فرماتے ہیں کہ اے نوجوانو! نفع اور نقصان پہچانے والے کاموں کے حساب و کتاب کا دن آ گیا۔جس طرح صبح کا سورج شان اور چمک دمک کے ساتھ رات کے اندھیرے کو ختم کر کے طلوع ہوتا ہے۔رات کے پیچھے صبح تلوار لئے کھڑی رہتی ہیں اور اندھیرا صبح نمودار ہونے کی وجہ سے ختم ہوتا ہے۔تم بھی اسی آفتاب کی طرح جو چمکتا ہوا شروع ہوتا ہے اور ہر طرف اندھیرے کو دور کرتا ہے۔اندھیرے کو ختم کر دو اور اپنے نور سے تمام دنیا کو روشن کر دو۔

نیکی بدی کے دیر سے باہم تھے معرکے　　اب خاتموں پہ آ گئے ہیں ان کے فیصلے
قسمت کے یہ نوشتے نہیں جو نہ مٹ سکے　　وہ گونجا طبل فتح کہ میدان کے لئے
کرنائے جنگ کی ہے یہ الحاں چلے چلو

شاعر کہتے ہیں کہ ایک مدت سے نیکی اور بدی میں جھگڑے اور لڑائیاں ہوتی آئی ہیں۔ حق اور باطل کے درمیان ہمیشہ سے لڑائیاں ہوتی رہی۔ اب ان دونوں کے درمیان لڑائیاں ختم ہوتے کو ہے اور فیصلہ ہونے والا ہے۔ باطل (یہاں مراد غلامی سے ہے) ہمارے مقدر میں نہیں لکھا تھا کہ مٹ نہ پاتا۔ میدان جنگ میں فتح اور آزادی اور کامیابی کی آواز بلند ہو رہی ہے۔ جنگ کا خاتمہ ہو رہا ہے۔ لہٰذا تم ہمت سے اپنی زندگی کا مقصد پورا کرو۔ بغیر کسی خوف اور ڈر کے آگے ہی آگے بڑھتے جاؤ اور اپنی منزل پاتے جاؤ۔

کتابی سوالات کے جوابات (نظم اولوالعزمی)

جواب (۱)

نظم ''اولوالعزمی'' کا موضوع نیک عمل کرنے کی دعوت ہے۔ عمل سے ہی منزل حاصل ہوتی ہے۔ اور عمل سے ہی ایک انسان اپنے مقصد میں کامیاب ہوتا ہے۔ عمل سے ہی بڑائی اور بلند مرتبہ حاصل ہوتا ہے۔ بقول علامہ اقبالؔ

عمل سے زندگی بنتی ہے جنت بھی جہنم بھی
یہ خاکی اپنی فطرت میں نہ نوری ہے نہ ناری ہے

جواب ۲ خلاصۂ نظم ''اولوالعزمی''

نظم ''اولوالعزمی'' میں مولانا محمد حسین آزادؔ نوجوان نسل سے فرماتے ہیں کہ اے نوجوانو! آپ کے سامنے ایک کھلا میدان ہے یعنی بڑی زندگی ہے۔ اس زندگی میں آپ کو بہت سی

آرزویں پوری کرنی ہیں۔اگراس زندگی کے میدان میں صحراء یادریانظرآئےتوان کوہمت سے پارکرنا ہے۔جتنی محنت تم اپنی زندگی میں کرو گےاتنے ہی پھل پانے جاؤ گے۔جولوگ ہمت کرکے گھوڑوں کوآگے لے جاتے ہیں اگران کے دشمن آسمان سے باتیں کرتے ہوں گےتو اسے کوئی فرق نہیں پڑے گا۔کیونکہ وہ پانی کے بلبلوں کی طرح ختم ہوں گے۔اگرتم قوم کی بھلائی کیلئے کوئی اچھا کام کرو گےتو اس کے بدلے میں انعام کی امید نہ رکھو۔نیکی ہروقت بدی پر فتح یاب ہوتی ہےاورآخرکارنیکی کی ہی جیت ہوتی ہے۔اگرتم کوخداعزت دے گا توتم اپنے ہاتھ دوسروں کے سامنے کیوں پھیلاؤ گے۔اپنی زندگی کوخوشگوار بناؤاورفخر سے کہوکہ ہم عزت کی زندگی گزاررہے ہیں۔

اےنوجوانو!دنیامیں جوکچھ بھی ہورہاہیں اس کا حساب وکتاب قیامت کے دن ہوگا۔ جس طرح صبح کا سورج رات کے اندھیرے کودورکردیتاہے۔اسی طرح تم بھی ظلم اوراندھیرے کوختم کردو۔تم چمکتے ہوئےسورج ہو۔ایک مدت سے نیکی اور برائی میں جنگ ہورہی ہے۔اب یہ جنگ ختم ہورہی ہے۔لہٰذابغیرکسی خوف وخطرے کےآگےہی آگے بڑھتے جاؤاوراپنی منزل حاصل کرتے رہو۔

"نظم جگنو" ازعلامہ اقبال

جگنو کی روشنی ہے کاشانہ چمن میں یاشمع جل رہی ہے پھولوں کی انجمن میں

نظم کے اس شعرمیں اقبال نے جگنو بمشابہ شمع قراردیاہے۔اورکہتے ہیں کہ اس قدر گلستان کے چھوٹے سے حصّے میں چمک رہاہیں جیسے پھولوں کے جھرمٹ میں کوئی چراغ روشن ہے۔غرض جگنوچمن کومنورکرنے اوراس کےحسن میں چارچاندلگانے میں محوہے۔

آیا ہے آسمان سے اڑ کر کوئی ستارہ یا جان پڑ گئی ہے مہتا کی کرن میں

اس شعر میں شاعر اقبالؔ کہتے ہیں کہ جگنو کی چمن آمد سے یوں گمان ہوتا ہے کہ جیسے آسمان سے کوئی تارہ اونچی پرواز بھرنے کے بعد چمن کے تعین بڑھ رہا ہے یا جیسے چاند کی کرن میں جان پڑ گئی ہے اور چمن کے تعین از آسمان آ رہی ہے۔

یا شب کی سلطنت میں دن کا سفیر آیا غربت میں آ گے چمکا گمنام تھا وطن میں

اقبال کہتے ہیں ایسا لگتا ہے کہ جگنو اپنے وطن میں گمنامی کی زندگی گزار رہا تھا یعنی بے وطنی اور مسافرت کے شکنجے میں جھکڑا ہوا تھا اور اسی بے وطنی اور گمنامی کو پرے کرنے کی غرض سے رات کی سلطنت میں قاصد الانوار بن کر روشنی کا پیغام لے کے چمن میں داخل ہو گیا۔

تکمہ کوئی گہرا ہے مہتاب کی قبا کا ذرہ ہے یا نمایاں سورج کے پیرہن میں

اقبال کہتے ہیں کہ جگنو کی چمک دمک کا مشاہدہ کر کے یوں گمان ہوتا ہے کہ جیسے پُر نور آفتاب بلباس نور کے گریبان سے کوئی نور کی گھنڈی علیٰحدہ ہو کر یا کوئی نور کا ذرہ پر نور سورج کا پیرہن (لباس) پہن کر چمن کی طرف آمد پزیر ہو رہا ہے۔

حسن قدیم کی یہ پوشیدہ اک جھلک تھی لے آئی جس کو قدرت خلوت سے انجمن میں

اس شعر میں اقبالؔ کہتے ہیں انوار جگنو دراصل اللہ تعالیٰ کے جلوے کی ایک پنہاں یعنی چھپی ہوئی جھلک تھی جس کو قدرت باری تعالیٰ نے آسمانوں کی تنہائیوں سے دنیائے شور و غوغا میں لا کر روشنی کا پیغام بجھوایا اور اپنی قدرت کا بھرپور مظاہرہ کروایا۔

چھوٹے سے چاند میں ہے ظلمت بھی روشنی بھی نکلا کبھی گہن سے آیا کبھی گہن میں

اقبال نے اس شعر میں جگنو کو چھوٹے سے چاند سے مشابہت دی ہے۔ اور کہتے ہیں کہ

جگنو میں تاریکی (اندھیرا) بھی ہے اور روشنی بھی یعنی جگنو پہ کبھی رونق تو کبھی بے رونقی چھا جاتی ہے۔ ایسا لگتا ہے کہ جیسے کبھی یہ گرہن کے اندھیرے میں چھپ جاتا ہے تو کبھی گرہن سے نکل کر روشنی پھیلاتا ہے۔ دراصل جب جگنو پروں سے اپنے جسم کو چھپالیتا ہے تو اس پر تاریکی چھا جاتی ہے اور جب یہ پروں کو پھیلاتا ہے تو اس کا روشن جسم عیاں ہوتا ہے اور ہر سمت روشنی چھا جاتی ہے۔

پروانہ اک پتنگا جگنو بھی اک پتنگا وہ روشنی کا طالب یہ روشنی سراپا

اس شعر کے مصرعۂ اول میں شاعر اقبالؔ نے پروانہ اور جگنو کو لباس یکسانیت اوڑھا ہے۔ شاعر کہتے ہیں کہ پروانہ بھی پتنگا یعنی شرارہ ہے اور جگنو بھی یعنی دونوں کو روشنی سے وابستگی ہے۔ دونوں پروانہ اور جگنو کو صفتِ درخشاں نے موصوف بنایا ہے۔ مگر وجہ تفاوت یعنی علیٰحدگی کی وجہ یہ ہے کہ پروانہ روشنی کا طلب گار ہے اور جگنو از خود بدرجۂ اتم روشنی ہے۔ پروانہ روشنی کا شیدائی ہے اور خود جھلس کر شیدایت کا ثبوت پیش کرتا ہے اور جگنو سرتاقدم خود روشنی ہے۔

ہر چیز کو جہاں میں قدرت نے دلبری دی پروانہ کو تپش دی جگنو کو روشنی دی

اقبال کہتے ہیں کہ خالق کائنات نے ہر ایک تخلیق شدہ شے کو اپنی دلبری سے نوازا ہے یعنی ہر شے کو ایک قسم کی کشش بخشی ہے جو باعث حیرانگی بن گئی اور کاروبار دنیا کی ابتداء کرائی۔ یہی قدرت کی دلبری پروانہ میں بصورت تپش نمودار ہوگئی اور جگنو میں بصورت روشنی یعنی خالق نے پروانہ کو چراغ کا شیدائی بنا کر عشق میں جھلسنے کی تڑپ سے اور جگنو کو سرتاقدم روشنی سے نوازا۔

رنگین نوا بنایا مرغانِ بے زباں کو گل کو زبان دے کر تعلیم خاموشی دی

اقبال کہتے ہیں خالق نے بے زبان پرندوں کو خوش آواز بنایا یعنی پرندوں میں قدرت

کی عطا شدہ دلبری بصورت خوش نوا نمودار ہوگئی یعنی پرندوں کو دل خوش کرنے والی آواز سے نوازا گیا۔

گل کی زبان سے مراد پھولوں کی پنکھڑی ہے۔اقبالؔ کہتے ہیں کہ خالق نے پھولوں کو خاموشی کی تعلیم دے کر خوش رنگت اور خوش مشک بنایا اور ان ہی قدرت کے عطا شدہ اوصاف کی وجہ سے پھول باعثِ کشش بن گئے۔

نظارہ سفق کی خوبی زوال میں تھی　　چمکا کے اس پری کو تھوڑی سی زندگی دی

اس شعر میں شاعر اقبالؔ نے جگنو کو پری سے تشبیہہ دی ہے اور کہتے ہیں کہ خالق نے اس پری کو یعنی جگنو کو روشن زندگی عطا کی ہے یعنی جو دلبری قدرت کی جانب سے جگنو کو عطا ہوئی ہے وہ بصورتِ روشنی ظاہر ہوگئی۔یہی دلبری غروب ہوتے ہوئے آفتاب کو عطا ہوئی تو شفق کا نظارہ نمودار ہوگیا۔یعنی جب آفتاب نصف النہار سے نیچے اترتا ہے اس وقت ایک دلفریب سرخی آسمان پر چھا جاتی ہے۔مختصر یہ کہ سفق کا نظارہ آفتاب کے زوال میں ہی ہوتا ہے۔

رنگین کیا سحر کو بانکی دلہن کی صورت　　پہنا کے لال جوڑا شبنم کی آراسی دی

اقبال کہتے ہیں خالق نے صبح کو خوبصورت اور البیلی عروس نو یعنی نئی نویلی دلہن کی طرح سجایا ہے۔جس طرح دلہن کی آرسی (زیور جو انگھوٹھے میں پہنا جاتا ہے) میں جڑے ہوئے شیشے میں اس کے لال جوڑے کا عکس نظر آتا ہے اسی برح صبح کو چمن میں شبنم کے قطروں میں عکسِ لالہ نمودار ہوتا ہے۔

سایہ دیا شجر کو پرواز دی ہوا کو　　پانی کو دی روانی موجوں کو بے کلی دی

اقبال کہتے ہیں کہ خالق نے درختوں کو سایہ فگن بنایا یعنی سایہ دار اور باعثِ راحت

بنایا اور ہوا کو پرواز یعنی اڑان عطا کی۔ پانی کو روانی تو موجوں کو شدت شدہ بے قراری عطا کی یعنی پانی کو بہنا سکھایا اور موجوں میں ٹکراؤ پیدا کیا۔

یہ امتیاز لیکن اک بات ہے ہماری جگنو کا دن وہی ہے جو رات ہے ہماری

اقبالؔ کہتے ہیں کہ ہر شے میں حقیقت میں خالق کے نور کی بنیاد ہے۔ بظاہر ہر ایک شے اوصافاً مختلف نظر تو آتی ہے مگر ہر شے میں خالق کے جلوے ہی نظر آتے ہیں۔ یہ دن اور رات، صبح و شام، روشنی اور تاریکی کی فرق دراصل ہماری پیدا شدہ ہے ورنہ جو جگنو کی رات ہے وہ ہمارا دن اور جو اس کا دن ہے وہ ہماری رات۔

حسنِ ازل کی پیدا ہر چیز میں جھلک ہے انسان میں وہ سخن ہے غنچے میں وہ چٹک ہے

ازل سے مراد وہ زمانہ ہے جس کی کوئی ابتداء نہ ہو یا مخلوق کا روز پیدائش۔ ازل سے پہلے کچھ نہ تھا سوائے خالق کے۔ بقول غالب

نہ تھا کچھ تو خدا تھا کچھ نہ ہوتا تو خدا ہوتا

حسن ازل سے مراد خالق کا حسن یعنی نور مطلق ہے۔ شاعر اقبالؔ کہتے ہیں کہ کائنات کی ہر شے میں خالق کے نور مطلق کی جھلک صاف عیاں ہے۔ اسی حسنِ ازل نے انسان کو حیوان ناطق بنایا یعنی انسان اگر بولنے کے لائق بنا تو اسی حسنِ ازل کی وجہ سے اور غنچہ و شگوفہ میں اگر چمک دمک ہے تو اسی کی وجہ بھی خالق کا نور مطلق ہی ہے۔

یہ چاند آسمان کا شاعر کا دل ہے گویا واں چاندنی ہے جو کچھ یاں درد کی کسک ہے

اقبالؔ کہتے ہیں کہ یہ نورِ مطلق چاند میں بصوت چاندنی اور شاعر کے دل میں بصورت درد ظاہر ہوا ہے یعنی چاند کی چاندنی نورِ ازل ہے جس کی وجہ سے اس کی پہچان کی ساخت بنی

ہوئی ہے۔اور یہی نورِازل شاعر کے دل کا درد ہے اور یہی درد اس کی سحر بیانی کی وجہ بن گئی۔

انداز گفتگو نے دھوکے دئے ہیں ورنہ نغمہ ہے بوے بلبل بو پھول کی چہک ہے

اقبالؔ کہتے ہیں کہ ہر ایک تخلیق شدہ شے میں حسن ازل موجود ہے۔اوصافاً ساری اشیاء مختلف تو نظر آتی ہے۔مگر ان میں یکساں نور موجود ہے۔اسلئے یوں کہا جاسکتا ہے کہ ہر ایک شے میں یکسانیت ہے۔لیکن ہم نے جو سونچ یا بات کرنے کا انداز اختیار کیا ہے اس نے ہمیں فریب دیا ہے۔دراصل بلبل کا نغمہ اس کی خوشبو ہے اور پھول کی خوشبو اس کی چہک یعنی میٹھی آواز ہے۔ یعنی جو نورِازل بلبل میں نغمہ کے طور پر ظاہر ہوا وہی نورِازل پھول میں خوشبو بنکر بکھر گیا۔

کثرت میں ہوگیا ہے وحدت کا راز مخفی جگنو میں جو چہک ہے وہ پھول میں مہک ہے

یہ اختلاف پھر کیوں ہنگاموں کا محل ہو ہو شے میں جبکہ پنہاں خاموسی ازل ہے

اقبالؔ کہتے ہیں کہ خدا کا راز یہاں مراد نور سے ہے وافر مقدار میں یعنی کثرت سے جہاں کی ہر شے میں پوشیدہ ہے جو مختلف شکلوں میں تشکیل ہو چکا ہے جیسے جگنو میں چمک کی صورت میں اور پھول میں مہک کی صورت میں ۔تو یہ باہمی اختلافات کیوں؟ یہ ہنگاموں اور فسادات کا درد کیوں؟ جب کہ ہر مخلوق میں خواہ جاندار ہو یا بے جان ،نورِازل مختلف صورتوں میں تشکیل ہو چکا ہے۔بقول مرزا غالبؔ

جب کہ تجھ بن نہیں کوئی موجود
پھر یہ ہنگامہ اے خدا کیا ہے

کتابی سوالات کے جوابات

جواب(۴) وحدت میں کثرت سے مراد ہر ایک تخلیق شدہ شے کی یکسانیت ہیں یعنی کائنات کیہر ایک شے میں خالق کا نورِ مطلق کثرت میں مختلف صورتوں میں تشکیل ہو کر وحدانیت و یکسانیت کی عکاسی کرتا ہے۔

جواب(۵) درج شدہ بند میں مصرعہ اول اور دوم میں جگنو کیلئے جو تشبیہیں استعمال ہوئی ہیں وہ درج ذیل ہیں۔

الف چاند کی قبا کا تکمہ یعنی گھنڈی

ب) ذرہ بلباس سورج

درج شدہ بند میں مصرعہ سوم اور چہارم میں سحر کیلئے جو تشبیہیں استعمال ہوئی ہیں وہ درج ذیل ہیں

الف) بانکی دلہن کی صورت۔

ب) شبنم کی آرسی اور لال جوڑا پہنی ہوئی دلہن۔

ناول "اور مزاج دار لٹ گئی"

مولوی نذیر احمد کی حالات زندگی اور ادبی خدمات:

آپ کا نام نذیر احمد اور خطاب شمس العلماء ۶ دسمبر ۱۸۳۳ء کو بجنور کے ایک گاؤں میں پیدا ہوئے۔ والد کا نام سعادت علی تھا۔ آپ کے والد آپ کو عالم دین اور عالم و فاضل بنانا چاہتے تھے۔ اور نو برس کی عمر میں ہی دہلی لا کر مولوی عبدالخالق امام شاہی مسجد کے حوالے کیا۔ لیکن آپ مولوی بننے کے بجائے اردو کے پہلے ناول نگار بنے۔ ۱۸۴۵ء میں دلی کالج میں داخلہ لیا۔ تعلیم سے فارغ ہو کر محکمۂ تعلیم میں ملازم ہو گئے۔ ملازمت کے دوران قانون کی کتابوں کا اردو میں ترجمہ کرنے کا موقعہ ملا۔ حکومت نے محکمۂ تعلیم سے نکال کر تحصیل دار اور اس کے بعد ڈپٹی کلکٹر بنایا۔ حکومت کی طرف سے سے اچھی کتابیں اور مضامین لکھنے پر کئی انعامات حاصل کئے۔ ۱۸۶۷ء میں اردو کا پہلا ناول نکال کر اردو ناول نگاری کی بنیاد رکھی اور حکومت کی طرف سے شمس العلماء کا خطاب ملا۔ اردو ادب میں مولوی نذیر احمد دو چیزوں سے مشہور ہے۔ اول تو وہ اردو زبان کے پہلے ناول نگار تھے۔ دوم انہوں نے علمی اور مذہبی معلومات پر قلم اٹھایا۔ آپ کا طرز تحریر سب سے نرالا، صاف اور زوردار ہے۔ آپ ۱۹۱۲ء میں انتقال کر گئے۔

نثری صنف "ناول" کی تعریف

ناول انگریزی لفظ ہے۔ اس کے معنی ''نئے'' کے ہیں۔ انگریزی میں کہانی کی اس قسم کو یہ نام اسلئے دیا گیا ہے کیونکہ اس کا انداز داستان یا قصہ کے مقابلہ مین نیا تھا۔ ناول وہ نثری تحریر ہے جس میں ایسی کہانی بیاں کی گئی ہو جو زندگی کی ترجمانی کرتی ہے۔ ناول کا فن دراصل معاشرتی یا انفرادی زندگی کی ترجمانی اور تصویر کشی کا فن ہے۔ ناول زندگی کے مسائل پہ بحث کرتا ہے۔ اس کے کردار انسان ہی ہوتے ہیں۔ ایک اچھے ناول میں زندگی کا نقشہ لازمی شے ہے۔

ناول نویس اپنے فکر و خیال سے ایک نئی حقیقت کو خلق کرتا ہے۔ جو دراصل زندگی کے حقائق سے ماخوذ ہوتی ہے۔ ناول کے اجزائے ترکیبی میں کہانی، پلاٹ، کردار، مکالمہ اور نظریۂ حیات پر بالخصوص زور دیا جاتا ہے۔ ناول ایک خیال ہے جو لوگوں تک پیغام لیجانے کا بہترین ذریعہ ہے۔ ناول کی بہت سی قسمیں ہیں جیسے روحانی، جاسوسی، سماجی، اقتصادی وغیرہ۔ پرانی ناولوں کا مقصد صرف معاشرت کو ٹھیک کرنا تھا۔ آہستہ آہستہ ناول ہر کسی موضوع پر لکھی جانے لگی۔

عزیز احمد، خدیجہ مستور، قراۃ العین حیدر، عبداللہ حسین، قاضی عبدالستار اور انتظار حسین کے ناول جدید عہد کی نمایندگی کرتے ہیں۔

ناول اور مزاج دار لٹ گئی'' کے کتابی سوالات کے جوابات

جواب(۱)

جمن بے وقوف عورتوں کو پھسلانے کے واسطے طرح طرح کے تبرکات اور صدہا قسم کی چیزیں اپنے پاس رکھا کرتی تھی۔ ان اشیاء میں چند درج ذیل ہیں

الف) تسبیح
ب) خاک شفا
ج) زمزمیا
د) مدینہ منورہ کی کھجوریں
ط) کوہ طور کا سرمہ
ظ) خانہ کعبہ کے غلاف کا ٹکڑا
ع) عقیق البحر
غ) مونگے کے دانے
ف) نادِ علی
و) پنجسورے
ہ) مختلف اقسام کی دوائیاں

جواب۲:

جمن مکارہ نے مزاج دار سے قیمت لئے بغیر فیروزے کی انگوٹھی اس کی ندر کر دی کیونکہ وہ اسے ٹھگنے کی خاطر اور اس کے گھر کے سارے اسرار و رموز جاننے کیلئے اس کے دل میں جگہ بنانا چاہتی تھی اور وہ ان مقاصد ناپاک میں کامیاب بھی ہوتی ہے۔

جواب۳)

مزاج دار بہو کو بے وقوف بنانے کی خاطر جن نے نمائشی اشیاء دکھا کر اپنے تعین مرغوب کیا۔ چند اشیاء قیمت خفیف (کم قیمت) لیکر فروخت کیں اور چند اشیاء بن داموں اس کی نذر کیں۔ مثلاً سرمہ اور نادعلیؓ قیمت قلیل لیکر فروخت کیں اور فیروزے کی انگھوٹھی بلاقسمت اس کی نذر کردی۔ جن ٹھگنی نے مزاج دار کو پھسلانے کی خاطر عجیب وحیرت انگیز قصے بھی سنائے

جواب۴)

باوجود عقلمند ہونے کے محمد عاقل جن ٹھگنی کی چال کو اسلئے نہ سمجھ سکا کیونکہ اس کے دل و دماغ پر حرص وحوس کا پردہ پڑ گیا۔ طمع نے محمد وعاقل کی عقل پر ایسا پردہ ڈال دیا کہ اتنی موٹی بات وہ سمجھ ہی نہ سکا کہ روپے کا مال چار آنے کو کوئی بے وجہ بھی دیتا ہے۔

جواب۵)

ایک روز جن ٹھگنی نے مزاج دار کے چند سونے کے زیورات صاف کروانے اور چمکیلا بنوانے اور چند زیورات میں دھاگا پروانے کا بہانہ کر کے سمیٹ لئے اور زلفن کو اپنے ہم راہ لیا۔ کچھ فاصلے کے بعد گلی کے نکڑ پر زیورات علیٰحدہ کرنے کی غرض سے رومال کھول دی اور ناک کی کیل گھر پر بھول جانے کا بہانہ کر کے زلفن کو کیل فراہم کرنے کی خاطر گھر روانہ کیا۔ اس طرح جن مزاج دار کے زیورات لوٹ لینے میں کامیاب ہوگئی۔

مقالہ "اقبال اور انسانیت"

مقالہ یا مضمون نگاری کی تعریف:

مقالہ جدید نثری صنف ہے اور عالمی ادب میں اس کی عمر زیادہ نہیں ہے۔ مقالہ عربی لفظ ہے جس کے معنی قول اور مقولہ ہیں۔ مقالہ میں کسی موضوع یا شخصیت کے بارے میں تحقیق کے بعد بحث کی جاتی ہے۔ چھان بین اور تحقیق کے بعد ہی مقالے لکھے جاتے ہیں مقالہ ایسی تحریر

کو کہتے ہیں جس میں کوئی واقعہ پیس کیا گیا ہو۔ مقالہ میں کسی موضوع کے مختلف پہلوؤں سے بحث کی جاتی ہے۔ اس کا انداز بہت سنجیدہ ہوتا ہے۔ مقالہ میں میٹھی اور شگفتہ زبان کا استعمال ہوتا ہے۔

عالمانہ افکار کے مدلل اظہار کے لئے مقالہ وجود میں آیا ہے۔ اردو زبان میں اس صنف کا آغاز بدستِ سرسید احمد خان ہوا۔ سرسید احمد خان نے متعدد سماجی مسائل اور موضوعات پر اپنے خیالات ربط و تسلسل کے ساتھ عالمانہ زبان میں پیس کئے۔ علامہ اقبال، مولانا حالی، ظفر علی خان، شبلی نعمانی، مولانا آزاد وغیرہ اردو زبان کے چند مقالہ نگار ہیں

مقالہ کائنات کی ہر شے پر لکھے جاتے ہیں۔ عام طور پر انسانی زندگی اور ان کی اخلاقی، سماجی، سیاسی، اقتصادی اور تمدنی زندگی کو سمجھنے کیلئے مقالہ لکھے جاتے ہیں۔

مقالہ کی اپنی تاریخ ہوتی ہے جو واقعات پر روشنی ڈالتی ہے۔ مقالہ ماضی، حال اور مستقبل کی نشاندہی کرتا ہے۔ مقالہ میں عام طور پر اوصاف حمیدہ اور زندگی سے رابطہ ضابطہ رکھنے والے پہلو اور انسانی قدریں اجاگر کی جاتی ہیں۔

مقالہ اقبال اور انسانیت کے چند درج شدہ اسعار کی تشریحات

کریں گے اہل نظر تازہ بستیاں آباد میری نگاہ نہیں سوئے کوفہ و بغداد

اقبال کہتے ہیں کہ دنیا میں جو سچے مومن ہوتے ہیں وہ دنیا میں نئی نئی بستیاں آباد کریں گے۔ وہ ساری دنیا کو خوشحال دیکھنا چاہتے ہیں۔ اقبال کہتے ہیں کہ میری نظر صرف کوفہ اور بغداد کی طرف نہیں ہے بلکہ میں ساری دنیا کو آباد دیکھنا چاہتا ہوں

فقیہہ شہر کی تحقیر کیا مجاد مری مگر یہ بات کہ میں چاہتا ہوں دل کی کشاد

اقبال کہتے ہیں کہ میں شہر کے مولوئیوں کو حقارت کی نظر سے نہیں دیکھتا ہوں اتنی میری مجال کہاں۔ بلکہ میں ان کے دلوں کو وسعت چاہتا ہوں کیونکہ وہ تنگ نظر ہوتے ہیں۔ میں ان کی بے عزتی نہیں کرتا ہوں بلکہ ان کو یہ احساس دینا چاہتا ہوں کہ ان کا مقصد کیا ہونا چاہئے اور وہ کیا کرتے ہیں۔

نہ فلسفی سے ملاّ سے ہے غرض مجھ کو یہ دل کی موت، وہ اندیشہ ونظر کا فساد

اقبالؔ کہتے ہیں کہ مجھے فلسفی اور ملاّ سے کوئی غرض نہیں ہے کیونکہ فلسفی دل کا مردہ اور ملا فتنہ فساد اٹھانے والا ہوتا ہے۔ اسے ہمیشہ فتنہ اور فساد کی فکر ہوتی ہے۔

کئے ہیں فاش رموز قلندری میں نے کہ فکر مدرسہ و خانقاہ سے ہو آزاد

اقبالؔ کہتے ہیں کہ میں نے قلندری کے تمام پوشیدہ راز ظاہر کئے ہیں۔ اس لئے کہ میں ان تمام جگہوں یعنی مدرسہ اور خانقاہوں کو ان پابندیوں سے آزاد دیکھنا چاہتا ہوں۔

ہاتھ ہے اللہ کا بندہ مومن کا ہاتھ غالب وکار آفرین، کارکشاد، کارساز

اقبالؔ کہتے ہیں کہ بندۂ مومن کا ہاتھ اللہ تعالیٰ کے ہاتھ کے برابر ہوتا ہے۔ یعنی وہ ہر ایک کی مدد کرنے والا، مشکلات حل کرنے والا اور تعریف کے قابل ہوتا ہے۔

خاکی و نوری نہاد، بندہ مومن کا ہاتھ ہر دو جہاں سے غنی، اس کا دل بے نیاز

اقبالؔ کہتے ہیں کہ ایک سچے مومن کو دنیا کی کوئی خبر نہیں ہوتی ہے۔ وہ دنیا کی آرزوؤں اور تمناؤں سے الگ ہوتا ہے یعنی دور ہوتا ہے۔ اس میں خالق کے صفات موجود ہوتے ہیں۔ اس کا دل دونوں جہانوں سے زیادہ دولتمند اور بے نیاز ہوتا ہے اور وہ بے شمار کمالات لا، ا؛ل پوتا ہے۔

اس کی امیدیں قلیل، اس کے مقاصد جلیل　　اس کی ادا دل فریب، اسکی نگاہ دلنواز

بندۂ مومن کے دل میں بہت کم آرزوئیں ہوتی ہیں۔ وہ دنیا کی تمنّاؤں سے الگ ہوتا ہے۔لیکن اس کے مقاصد بہت ہی شاندار ہوتے ہیں۔اس کی ہر ایک ادا دل کو خوش کرتی ہے۔ اس کی نظریں دلکش ہوتی ہیں۔

نرم دمِ گفتگو، گرم دمِ جستجو　　رزم ہو یا بزم ہو، پاک دل و پاکباز

اقبالؔ کہتے ہیں کہ جب ایک مومن کسی سے بات کرتا ہے وہ بہت ہی نرم انداز اختیار کرتا ہے۔ چاہے وہ اس وقت لڑائی کے میدان میں ہو یا کسی محفل میں۔ ہر جگہ وہ صاف و پاک ہوتا ہے۔اسکے ارادے ہر جگہ اور ہر وقت بلند ہوتے ہیں۔

کہتا ہوں وہی بات سمجھتا ہوں جسے حق　　بے ابلۂ مسجد ہوں، نہ تہذیب کا فرزند

اقبالؔ کہتے ہیں کہ نہ تو میں مسجد کا بے وقوف ملاّ ہوں اور نہ ہی نئی تہذیب کا بیٹا ہوں۔ میں آج کے دور کا فیشن پرست آدمی نہیں ہوں۔ میں وہ ہی بات کہتا ہوں جسے میں حق مانتا ہوں میں جھوٹ کا عادی نہیں ہوں۔

اپنے بھی خفا مجھ سے ہیں، بے گانے بھی ناخوش　　میں زہر ہلال کو کبھی کہہ نہ سکا قند

اقبالؔ کہتے ہیں کہ مجھ سے اپنے بھی پرائے بھی ناراض ہیں کیونکہ میں ہمیشہ وہ ہی بات کہتا ہوں جو حق ہے۔ میں جھوٹ کا دادی نہیں ہوں۔ میں نے کبھی بھی زہر کو میٹھی چیز نہیں کہا ہے بلکہ زہر کو ہر وقت زہر ہی بتایا ہے اسی لئے میں اپنوں اور غیروں کا دشمن بن گیا ہوں کیونکہ سچ کڑوا ہوتا ہے۔

پر سوز و نظر بازو و نکو بین و کم آزاد آزاد و گرفتار و تہی کیسہ و خرسند

اقبالؔ کہتے ہیں کہ بندۂ مومن ہمیشہ پُرسوز رہتا ہے۔ وہ اپنی نظر میں وسعت رکھتا ہے۔ ہر وقت اس کی نظر میں پاک ہوتی ہے۔ وہ لوگوں کو تنگ نہیں کرتا ہے۔ وہ دنیا کی تمناؤں سے آزاد ہوتا ہے۔ اس کے ہاتھ خالی ہوتے ہیں یعنی وہ لالچ کے بغیر ہوتا ہے۔ اسکے باوجود وہ ہر حال میں خوش رہتا ہے۔

ہر حال میرا دل بے قید ہے خرم کیا چھینے گا غنچے سے کوئی ذوقِ شکر خند

اقبال کہتے ہیں کہ میرا دل ہر حال میں خوش اور آزاد ہے۔ جس طرح کوئی بھی چیز ایک غنچے سے مسکرانے کی ادا نہیں چھین سکتا ہے اسی طرح میری اذادی اور خوشی مجھ سے کوئی نہیں چھین سکتا۔ دنیا کی کوئی بھی خرابی مجھ پر اثر نہیں کر سکتی ہے۔

شکتی بھی شانتی بھی بھگتوں کے گیت میں ہے دھرتی کے باسیوں کی بکتی پربت میں ہے

اقبالؔ کہتے ہیں کہ دنیا میں امن اور آزادی صرف قومی گیتوں میں ہے جو انسانیت کا سبق دیتے ہیں۔ زمین پر رہنے والوں اور بسنے والوں کی آزادی صرف اس بات میں ہے کہ وہ آپسمیں ملجل کر اور پیار و محبت سے رہے۔ کیونکہ پیار و محبت سے رہنے میں ہی نجات حاصل ہوسکتی ہے۔

مقالہ "اقبالؔ اور انسانیت" کے کتابی سوالات کے جوابات

جواب (۱)

اقبال کے مطابق اپنی خودی کے احترام کے ساتھ ساتھ دوسروں کی خودی کے سچے احترام سے ہی صالح زندگی کی تعمیر ہوسکتی ہے۔ صالح زندگی کا راز اپنی خودی اور دوسروں کی خودی کے احترام میں ہی پوشیدہ ہے۔ جب یہ دونوں چیزیں کسی فرد میں جمع ہو جائیں تو اس میں

خوداری، صداقت، دیانت داری اور جرأت کی صفات پیدا ہوتی ہیں اور جماعت کے رکن کی حیثیت سے ہمدردی، رواداری اور فراخ دلی سے کام لینا سیکھتا ہے۔

جواب۲:

بموجب اقبالؔ خودی سے مراد انانیت، غرور وتکبر یا نمود ونمائش نہیں بلکہ کود شناسی اور معرفت نفس ہے یعنی اپنے نفس کو پہچاننا ہے۔ایک انسان جب اپنے آپ کو پہچان لیتا ہے کہ وہ کیا ہے، اس دنیا میں اس کی آمد کا مقصد کیا ہے تو وہ خود بخود خالق شناس بن جاتا ہے۔اسے ہر ذرہ میں خدا کے جلوے نظر آتے ہیں۔بقول شبیبؔ رضوی

اس نے کتنی لطیف بات کہی
خود ناسی خدا شناسی ہے

خودی سے ایک انسان میں اوصاف حمیدہ مثلاً صداقت، دیانت داری، جرأت، رواداری، خاکساری وغیرہ پیدا ہوتے ہیں۔

جواب ۳)

بمطابق اقبالؔ دنیا کی ہر ایک قوم نفاق کا شکار ہوگئی ہے۔اقوام دنیا ایک دوسرے کے تعین اپنے دلوں میں تعصب کو جادیتے ہے۔گو بسبب نفرتیں عام ہوگئی۔قوم، نسل، رنگ، ذات پات اور ملک کے تصور نے اہل دنیا کے درمیان مخالفت کی دیواریں کھڑی کر کے زندگی کے حسین نقشے کو بگاڑ دیا ہے۔اقوام مہلک تھیاروں کی ایجادات میں محو ہیں اور دنیا کو تباہ برباد کرنے پر تلے ہیں۔

جواب(۴)

اقبالؔ کی شاعری کے بنیادی فکری پہلوؤں میں جن کی وضاحت خواجہ غلام السیدین نے مقالہ ''اقبال اور انسانیت'' میں کی ہے، بنی نوع انسان کی وحدت، ہمدردی، احترام خودی،

رواداری اورانسان دوستی قابلِ ذکر ہیں۔اقبال کا پیغام مخالفت اوردشمنی کی دیواریں کھڑا کرنے والوں کے خلاف ایک جہاد ہے۔آپ کی نظمیں حقائق، فلسفہ اور جوش عمل کی علمبردار ہیں اور جذبات نگاری کا سرچشمہ ہیں۔آپ نے نوجوانوں کو پیغام دیا کہ جاگو، اٹھو، اپنی قوت کو پہچانو اور دنیا میں اپنی قوت کو ثابت کرو، آپ نے ہرانسان کو بندۂ مومن بننے کا پیغام دیا ہے۔یہی روح ہے آپ کے فلسفہ کی۔

جواب(۵)

انسان اورانسانیت کی فلاح کے لئے تمام بتان بے فیض مثلاً قوم، رنگ ونسل، ذات پات اور ملک کے تصور، جن کی وجہ سے مخالفت اور دشمنی کی دیواریں کھڑی ہوگئی اور زندگی کا حسین نقشہ بگڑ گیا ہے، کے خلاف جہاد کرنا لازمی ہے۔

اقبالؔ نے انسانیت کی فلاح کے لئے جذبۂ اخوت، رواداری، شرافت فراخ دلی اور انسان دوستی لازمی اوصاف قرار دئے ہیں۔

جواب(۶)

مقالہ ''اقبال اورانسانیت'' میں خواجہ غلام السّیدین نے اقبالؔ کے تصورانسانیت مومن کی پہچان کا تذکرہ کیا ہے۔ذات پات، رنگ ونسل نے انسان اورانسانیت کے خوبصورت نقشے کوخراب کررکھا ہے۔اقبالؔ کا کلام اس خرابی کے خلاف ایک جہاد ہے۔اقبالؔ کہتے ہیں کہ میں اسلام کی وکالت نہیں کرتا بلکہ انسانی سماج کوٹھیک اور بہتر دیکھنا چاہتا ہوں۔یہ تب ہی ممکن ہے جب تمام تفرقے دلوں سے ختم کردئے جائیں۔

اقبال نے عشق حقیقی کوعقل پرترجیح دی ہے اورعلم کولازمی قرار دیا ہے۔ایک انسان کو چاہئے کہ وہ اپنی خودی کا احترام کرے۔اقبال کہتے ہیں کہ جس طرح ہمیں اپنی خودی پیاری ہوتیہے اسی طرح دوسروں کی خودی کا بھی احترام کرنا چاہئے۔اس سے انسان مین صداقت،

دیانت داری اور جرأت کی صفات پیدا ہوتی ہیں۔ ایک انسان کو چاہئے کہ وہ ایک دوسرے کا خون پینے کے بجاء ایک دوسرے کے دکھ سکھ کا ساتھی بنے۔ سائینس اور علم کی ایجادات نے ایک انسان کو بے اندازہ طاقت بخشی ہے۔ یہ ایجادات انسانیت، خوشحالی اور زندگی بہتری کے لئے استعمال کی جاسکے۔ یہ ان کا مرکزی خیال اقبال کی سب سے بڑی تمنا یہ تھی کہ انسان بندۂ مومن بنے۔ ان کا یہ پیغام کوئی نیا پیغام نہیں ہے بلکہ ہر ایک فلسفی، ولی اور خدا کے نیک بندے یہ بات کہی ہے۔ اس لئے کوئی بھی شخصیت اقبالؔ کو ایک اچھا پیغمبر کہتا ہے۔ کیونکہ ایسے دانا انسان بار بار پیدا نہیں ہوتے ہیں۔ ایسے انسان ملک اور قوم کی ہی ملکیت نہیں ہوتے بلکہ ساری دنیا اور ہر آنے والے زمانے کی ملکیت ہوتے ہیں۔

جواب(۷)

لفظ: خیال

جملہ: محسر کی پرسش کے خیال سے میری روح کانپ اٹھتی ہے۔

لفظ: تلاش کرنا

جملہ: وہ اس قدر بے وفا ہو گئے کہ اس کو تلاش کرنا غیر ممکن ہو گیا۔

لفظ: ٹھیس

جملہ: عبدالرحمان کی علیٰحدہ پسندی سے اس کے والد کے دل کو ٹھیس پہنچی ہے۔

لفظ: حامی

جملہ: حمید کا سب کے تعین حامی ہونا ہی اس کی مقبولیت کی وجہ ہے۔

غزل اکبر جے پوری

کس کو معلوملے خاک میں منظر کتنے
اپنے آئینے چھپائے ہیں سکندر کتنے

اس شعر میں شاعر اکبر جے پوری نے دنیا کی بے ثباتی کی عکاسی کی ہے۔اور کہتے ہیں کہ نہ جانے کتنے دنیا کو زیبائش بخشنے والے منظر خاک میں مل گئے یعنی ویران اور تارج ہو گئے اور سکندر جیسے کتنے عظیم فاتح بادشاہ خاک میں پیوند ہو گئے یعنی خاک کی نذر ہو گئے۔مختصر یہ کہ دنیا کی آبادیاں زیر خاک مقیم ہو گئے۔

تشنہ لب تر سا کئے پیاس لئے آنکھوں میں
اور محلوں میں چھلکتے رہی شاعر کتنے

اس شعر میں اکبر جے پوری نے عصری تفاوت کی عکاسی کی ہے۔شاعر کہتے ہیں دنیا کا بسر اوقات یکساں نہیں۔کسی کی زندگی تسکین تو کسی کی اضطراب کی نذر ہو جاتی ہے۔کسی کی انکھوں سے اس کے ہونٹوں کی پیاس عیاں ہوتی ہے تو کسی کی محفل میں شراب کی ندیاں بہتی ہیں یعنی کچھ لوگ پانی کی ایک بوند ھ کو ترستے ہیں تو کچھ جام بھر بھر کے نوش فرماتے ہیں۔

پرچم امن لئے پھرتے ہیں شہروں شہروں
آستینوں میں چھپائے ہوئے خنجر کتنے

اس شعر میں شاعر اکبر جے پوری نے قوم کے س براہان مفاد پرست کی طرف اشارہ کیا ہے۔اور کہتے ہیں کہ چند سر براہان اپنے فائدے کے لئے امن و آستی کے علمبر دار بن کر شہروں شہروں گھومتے پھرتے ہیں۔دراصل یہ اپنے آستینوں میں خنجر چھپائے ہوئے ہوتے ہیں یعنی یہ ابدامنی کی آگ پھیلانے میں کوئی کثر نہیں چھوڑتے۔یہ دراصل اپنے مفادات کے لئے امن کا

پرچار کرتے ہیں۔ دراصل یہ قوم کے قاتل ہیں۔

کس طرح دیتا صدا مجھ کو پتہ یاد نہ تھا
یوں تو بستی میں نظر آئے کھلے در کتنے

شاعر اکبر کہتے ہیں کہ میں اپنی منزل مقصود کی تلاش میں بستی بستی پھرا ہوں یعنی اپنے محبوب کے مسکن کی تلاس میں در بدر اس کی بستی میں گھومتا ہوں مگر بے سود۔ بستی میں تو متعدد در کھلے نظر آئے مگر میں اس کو، کس طرح تلاش کرتا اور صدا دیتا کیونکہ مجھے اس کا پتہ معلوم کی نہیں تھا۔ مختصر یہ کہ مجھے گرد سفر کے سوا کچھ حاصل نہ ہوا۔ بقولِ فاکر

تا عمر ڈھونڈتا رہا منزل میں عشق کی
انجام یہ کہ گرچِ سفر لے کے آگیا
دیکھ کر تشنہ لبی میری تعجب نہ کرو
میں نے صحراؤں کو بخشے ہیں سمندر کتنے

اس شعر میں اکبر جے پوری لوگوں سے مخاطب ہوکر کہتے ہیں کہ اے لوگوں! تم میری فاقہ کشی اور پیاس اور بدحالی پر حیران مت ہوجاؤ۔ ہم نے صحراؤں کو سمندروں سے نوازا ہے اور ویرانوں کو آباد کیا ہے۔ یعنی ہم نے پیاسوں کی پیاس بجھائی ہے اور ان کی تسکین کے لئے ہم نے خود کو لٹا دیا۔ گو بسبب ہم اس حالِ تباہ میں متبلہ ہوگئے۔

قصیدہ شہر آشوب

قصیدہ کی تعریف، اجزائے ترکیبی اور اقسام

قصیدہ نظم کی وہ صنف ہے جو کسی زندہ انسان کی تعریف یا برائی میں لکھی جائے۔ ایک شاعر کسی کے اچھے کاموں سے متاثر ہوکر اس کے اوصاف اور کارنوموں کو بیان کرنے لگتا ہے۔

عرب کا کوئی بھی شاعر اس وقت تک قصیدہ نہیں کہتا تھا۔ جب تک وہ ممدوح کو (جس کی تعریف یا برائی کی جائے) تعریف کے لائق نہ پاتا

قصیدہ کا معنی دلدار یا فخر کے ہیں، قصیدہ لکھتے وقت ایک شاعر کو انتہائی ذہنی قوت کا ستعمال کرنا پڑتا ہے۔ اسی لئے اس کا نام قصیدہ پڑ گیا کیونکہ قصیدہ کا اصلی معنی ارادہ کے ہیں۔ شاعر ارادہ کر کے کسی خاص موضوع پر اپنی پوری توجہ کے ساتھ شعر کہتا ہے۔ قصیدہ میں پہلے شعر کے دونوں مصرعے ہم قافیہ ہوتے ہیں۔ اسے مطلع کہتے ہے۔ ایک قصیدہ میں ایک سے زیادہ مطلع ہوتے ہیں۔ یہ مطلع اشعار کے بیچ میں پائے جاتے ہیں۔

قصیدہ کے اقسام:

ہیت کے لحاظ سے قصیدہ کی دو قسمیں ہیں

الف) خطابیہ:

جب قصیدہ براہ راست کسی کی تعریف، مدح یا ہجو سے شروع ہوتا ہے۔

ب) تمہیدیہ:

جب قصیدہ براہ راست اصل موضوع سے شروع نہیں ہوتا یعنی کسی کی تعریف سے شروع نہ کیا جائے تو ایسے قصیدہ کو تمہیدیہ کہتے ہیں۔

قصیدہ کے اجزائے ترکیبی:

تمہیدیہ قصیدہ کے چار اجزاء ہوتے ہیں۔

(الف) تمہید یا تشبیب:

اسے نسیب بھی کہتے ہے۔ اصل موضوع یعنی مدح یا مذمّت شروع کرنے سے پہلے شاعر کچھ اشعار بطور تمہید کہتے ہیں۔ ان اشعار میں بہار، شراب و شباب، حسن و عشق، پند و نصحت وغیرہ مضامین پر لکھے جاتے ہے۔

ب) گریز:

یہ قصیدہ کا وہ حصّہ ہے جہاں شاعر تمہید کو ترک کر کے مدح کی طرف توجہ دیتا ہے۔ وہ اشعار جو تمہید کے غیر متعلق جُز کو مدح سے ملاتے ہیں گریز کہلاتے ہیں۔

ج) مدح یا مذمت:

یہی قصیدہ کا اصل موضوع ہے۔ مدّح میں عام طور پر ممدوح کے علم و عقل، انصاف، بہادری، شرافت، سخاوت وغیرہ کی تعریف بڑے حیرت کُن انداز میں کرتے ہیں۔ گھوڑے اور شمشیر کی بھی تعریف کی جاتی ہے۔

د) مقطع یا خاتمہ بر دعا:

یہ قصیدہ کا آخری جُز ہے۔ اس مین شاعر ممدوح کی سلامتی اور عمر درازی کی دعا کرتا ہے کیونکہ وہ ممدوح سے انعام کا طالب ہوتا ہے۔ اسی لئے قصیدہ کے اس آخری جُز کو حسنِ طلب کا نام بھی دیتے ہیں۔

اردو قصیدہ نگاری میں سوداؔ اور ذوقؔ بلند مرتبہ رکھنے والے قصیدہ گو مانے جاتے ہیں۔ انکے علاوہ انشاء، مصحفیؔ، راسخ عظیم آبادی، مومنؔ دہلوی، طالبؔ دہلوی، امیر مینائی اور جلال لکھنوی وغیرہ کے نام بھی قابل ذکر ہیں۔

تشریحات قصیدہ شہر آشوب

اب سامنے میرے جو کوئی پیرو جوان ہے دعویٰ کہ نہ کرے یہ کہ میرے منہ میں زباں ہے

سوداؔ اس شاعرانہ تعلیٰ میں کہتے ہیں کہ میرے سامنے کوئی بھی شاعر چاہے بوڑھا ہو یا جوان یہ دعویٰ نہ کرے کہ وہ شیرین ربان، سحر بیاں شاعر ہے یا موزوں کلام ترتیب دے سکتا ہے۔سودا کی شیرین زبانی، سوز و گدازی اور سخن وری کا کوئی مقابلہ نہیں

میں حضرت سودا کو بنا بولتے یارو اللہ اللہ بے! کیا نظم بیاں ہے کوئی شخص سوداؔ

سوداؔ اہل سخن سے مخاطب ہوکر کہتے ہیں کہ میں نے سوداؔ کو نظم کہتے ہوئے سنا ہے۔اس کے انداز تحریر و تقریر کا کوئی ثانی نہیں۔قدرت الٰہی سے اس کی زبان کی روانی، شیرین بیانی اور تخیل و شوخی کا کوئی مقابلہ نہیں۔

اتنا میں کیا عرض کہ فرمایئے حضرت آڑام سے کٹنے کی طرح کوئی بھی یاں ہے

وہ شخص سوداؔ سے کہنے لگا کہ دُنیا میں کوئی ایسا ٹھی ہے جس کی زندگی آرام سے گزری ہو اور جس نے زندگی میں خوشی ہی خوشی دیکھی ہو۔لیکن یہاں ایسا کوئی بھی نہیں ہے۔

سن کر لگے یہ کہنے کہ خاموش ہی ہوجا اس امر میں قاصر تو فرشتے کی زباں ہے

سوداؔ نے اس شخص سے کہا کہ اے نادان! اچھائی اسی میں ہے کہ آپ خاموش ہی رہے۔ اس سلسلے میں فرشتے بھی کچھ کہنے کے لئے بے بس ہے۔لہٰذا آپ کا خاموش رہنا ہی ٹھیک ہوگا۔

کیا کیا بتاؤں کہ زمانے میں کئی مشکل ہے وجہِ معاش اپنی، سو جس کا یہ بیاں ہے

سوداؔ کہتے ہیں کہ میں کیا بتاؤں کہ زمانہ کتنے رنگ اور روپ بدلتا رہتا ہے۔ زمانے میں روزی روٹی کمانے کے متعدد ذرایعہ موجود ہیں مگر تباہ حال ہو چکیں ہیں۔ موجودہ دور میں اکثر و بیشتر پیشے زوال کا شکار ہو گئے ہیں۔ ان پیشوں کے متعلق میں تذکرہ کروں گا۔

گھوڑا لے اگر نوکری کرتے ہیں کسو کی تنخواہ کا پھر عالمِ بالا پہ مکاں ہے

سوداؔ کہتے ہیں کہ موجودہ دور میں روزی روٹی حاصل کرنا مشکل عمل بن گئی ہے۔ اگر کسی کا پیشہ سائیسی ہے اور وہ اپنا پیشہ منہی بخوبی انجام دیتا ہے تو اس کی تنخواہ اس کی پہنچ سے پرے آسمان پر ہے۔ یعنی اس کی خدمت کا معاوضہ یعنی تنخواہ نہیں ملتی ہے۔

گزرے ہے سدا یوں علف و دانہ کی خاطر شمشیر جو گھر میں تو سپر بینے کے ہاں ہے

سوداؔ کہتے ہیں کہ سائیس رات دن محنت و مشقت کرتا رہتا ہے مگر بے سود۔ اتنی مشقت کے بعد وہ بدحالی کی زندگی گزارتا ہے۔ گھوڑے کیلئے گھاس اور اپنے لئے اناج حاصل کرنا دشوار ہو جاتا ہے۔ اس کی تلوار گھر پر اور اس کی ڈھال بنئے کی دکان پر گروی رہتی ہے۔ تب جا کے وہ گھاس اور اناج حاصل کرتا ہے۔

سودا گری کیجئے تو ہے اس میں مشقت دکھن میں بکے وہ جو خرید صفہاں ہے

سوداؔ کہتے ہیں موجودہ دور میں سودا گری اور تجارت میں بھی بہت محنت کرنی پڑتی ہے۔ معیشت کی محنت آزار جان بنی ہے۔ سوداگروں کو مال صفہان (ایران کا ایک شہر) سے خریدنا پڑتا ہے اور ہندوستان کے شہر دکھن میں فروخت کرنا پڑتا ہے۔

شاعر جو سنے جاتے ہیں مستنی الاحوال دیکھے جو کوئی فکر تردّد کو تو یاں ہے

سودا کہتے ہیں کہ شاعروں کے بارے میں سنا ہے کہ وہ لاپرواہ ہوتے ہیں۔اگران کوکسی قسم کی فکر ہوتی ہے تو صرف دولت کی۔اگران کے پاس دولت ہوتو ان کی حالت ٹھیک ہے باقی ان کوکسی بھی قسم کی فکر لاحق نہیں ہوتی ہے۔

مشتاق ملاقات انہوں کا کس و ناکس ملنا انہیں ان سے جوفلاں ابن فلاں ہے

سودا کہتے ہیں کہ اپنے اور غیر بھی شاعروں سے ملنے کا شوق رکھتے ہے۔لیکن شاعران ہی سے ملنے کا طالب یعنی خواہش مند ہے جومشہور ہوں یعنی وہ بڑے بڑے اور نامور لوگوں سے ہی ملنا پسند کرتے ہیں۔

گرعید کا مسجد میں پڑھیں جاکے دوگانہ نیت قطعہ تہنیت خانِ زماں ہے

سوداؔ کہتے ہیں کہ اگر شاعر عید کے دن مسجد میں جا کر دو رکعت نماز پڑھیں تو وہاں پر ان کی نیت نماز پڑھنے کی نہیں ہوتی ہے بلکہ بڑے بڑے لوگوں کے نام قطعہ تہنیت یعنی مبارک بادی کے چند اشعار لکھنے کی ہوتی ہے۔تا کہ اس کے عوض ان کو کچھ معاوضہ حاصل ہو۔

ملّائی اگر کیجئے تو ملا کی ہے یہ قدر ہوں دوروپے اس کے جوکوئی مثنوی خواں ہے

شاعر سوداؔ کہتے ہیں کہ زمانہ اس قدر بدل گیا ہے کہ اب مولوی اور امام صاحبان کی کوئی قدر ہی نہیں رہی۔انہیں اب کوئی پوچھتا بھی نہیں۔اگر وہ کہیں دو اشعار مثنوی کے پڑھے تو اس کے حصہ میں دوروپے آجاتے ہیں ورنہ اس کی زمانے میں کوئی قدر ہی نہیں۔

اور ما حضر اخوند کا اب کیا میں بتاؤں یک کاسۂ دالِ عدس و جو کی دو نیاں ہے

سوداؔ کہتے ہیں کہ ایک استاد کے بارے میں کیا بتاؤں کہ اس کی حالت کیسی ہے۔اس کی خدمت کے عوض اسے ایک پیالہ مسور کی دال اور جو کی دو روٹیاں ملتی ہیں۔ایک استاد کی کوئی

قدر اور عزت نہیں کی جاتی۔

اتنا میں کیا عرض کہ فرمائے حضرت آرام سے کٹنے کی طرح کوئی بھی یاں ہے

وہ شخص سودا سے کہنے لگا کہ دنیا میں کوئی ایسا بھی ہے جس کی زندگی آرام سے گزری ہو اور جس نے زندگی میں خوشی دیکھی ہو۔لیکن یہاں ایسا کوئی بھی نہیں ہے۔

سن کر لگے یہ کہنے کہ خاموش ہوجا اس امر میں قاصر تو فرشتے کی زباں ہے

سوداؔ نے اس شخص سے کہا کہ اے نادان! اچھائی اسی میں ہے کہ آپ خاموش ہی رہے۔ اس سلسلے میں فرشتے بھی کچھ کہنے کے لئے بے بس ہے۔لہٰذا آپ کا خاموش رہنا ہی ٹھیک ہوگا۔

کیا کیا میں بتاؤں کہ زمانے میں کئی شکل ہے وجہِ معاش اپنی، سو جس کا یہ بیاں ہے

سوداؔ کہتے ہیں کہ میں کیا بتاؤں کہ زمانہ کتنے رنگ اور روپ بدلتا رہتا ہے۔زمانے میں روزی روٹی کمانے کے متعدد ذرایعہ موجود ہیں مگر تباہ حال ہوچکیں ہیں۔موجودہ دور میں اکثر بیشتر پیشے زوال کا شکار ہوگئے ہیں۔ان پیشوں کے متعلق میں تذکرہ کروں گا۔

گھوڑا لے اگر نوکری کرتے ہیں کسو کی تنخواہ کا پھر عالم بالا پہ مکاں ہے

سوداؔ کہتے ہیں کہ موجودہ دور میں روزی روٹی حاصل کرنا مشکل عمل بن گئی ہے۔اگر کسی کا پیشہ سائیسی ہے اور وہ اپنا پیشہ منسی بخوبی انجام دیتا ہے تو اس کی تنخواہ اس کی پہنچ سے پرے آسمان پر ہے۔یعنی اس کی خدمت کا معاوضہ یعنی تنخواہ نہیں ملتی ہے۔

گزرے ہے سدا یوں علف و دانہ کی خاطر شمشیر کا پھر عالم بالا پہ مکاں ہے

سوداؔ کہتے ہیں کہ سائیس رات دن محنت و مشقت کرتا رہتا ہے مگر بے سود۔اتنی مشقت کے بعد کے وہ بدحالی کی زندگی گزارتا ہے۔گھوڑے کیلئے گھاس اور اپنے لئے اناج حاصل کرنا

دشوار ہوجاتا ہے۔اس کی تلوار گھر پر اور اس کی ڈھال بنئے کی دکان پر گروی رہتی ہے۔تب جاکے وہ گھاس اور اناج حاصل کرتا ہے۔

بے تال ہو شیخ جو ٹک وجد میں آکر　　سرگوشیوں میں پھر ابدا صولی کا بیاں ہے

سوداؔ کہتے ہیں کہ وجد میں آکر یعنی ذوق وشوق کی حالت میں پیرومریداں بے تال یعنی بے قابو ہوجاتے ہیں۔ان کی آواز نہ ساز سے ملتی ہے اور نہ ہی ساز کی آواز ان سے ملتی ہے۔وہ آپس میں کانا پھوسی کرتے ہیں اور بداصولی کا بیاں کرنا شروع کرتے ہیں یعنی لوگوں کو ٹھگنے کی کوشش میں لگجاتے ہیں جبکہ کیفیت وجد صرف دکھاوا ہے۔

آرام سے کٹنے کا سنا تو نے کچھ احوال　　جمعیت خاطر کوئی صور ہو، کہاں ہے

سوداؔ اس شخص سے مخاطب ہوکر کہتے ہیں کہ کیا تم نے اس شہر آشوب کا کچھ حال سنا؟ کہ یہاں ایسا کوئی ہے جس نے اپنی زندگی آرام سے گذاری ہو۔دراصل ایسا کوئی بھی نہیں ہے۔یہاں کسی کو بھی آرام حاصل نہیں اور سب پریشان نظر آتے ہیں۔

دنیا میں تو آسودگی رکھتی ہے فقط نام　　عقبیٰ میں یہ رکھتا تھا کوئی، اس کا نشاں ہے

سوداؔ کہتے ہیں کہ دنیا میں خوشحالی صرف نام کے واسطے ہے۔یہاں یعنی اس دنیا میں خوشحالی دراصل نہیں ہے۔کہا جاتا ہے کہ خومرنے کے بعد آخرت میں نصیب ہوگی۔اگر یہاں نہیں ملے گی تو ضرور دوسری دنیا میں ملے گی۔

سو اس پہ یقین کسی کے دل کو نہیں ہے　　یہ بات بھی گوئندہ ہی کا محض گماں ہے

سوداؔ کہتے ہیں کہ خوشحالی پر اب کسی کو بھی بھروسہ نہیں ہے۔اصل میں یہ کہنے والے کا وہم

وگمان ہے۔خوشحالی نہ تو یہاں ملتی ہے اور نہ ہی آخرت میں ۔اس بات پر یقین کرنا غلط ہے کہ خوشحالی یہاں نہیں تو وہاں اخرت میں ملے گی۔

یاں فکر معیشت ہے تو واں دغدغۂ حشر آسودگی حرفیست ، نہ وہ یاں ہے نہ واں ہے

سوؔدا کہتے ہیں کہ اس دنیا میں آدمی کو اپنی روزی روٹی کی فکر پریشان کرتی ہے اور آخرت میں حساب وکتاب کا ڈر۔لہٰذا خوشحالی نہ اس دنیا میں ہے اور نہ ہی آخرت میں ہے۔

دن کو وہ بے چارہ پڑھایا کرے لڑکے شب خرچ لکھے گھر کا اگر ہندسہ داں ہے

سوؔدا کہتے ہیں کہ ایک استاد بے چارہ دن بھر مدرسہ میں طالب علموں کو پڑھاتا رہتا ہے اور اگر استاد ہندسہ داں ہے یعنی حساب جاننے والا ہے تو اس کی رات گھر کے خرچے کا حساب و کتاب کرتے کرتے گذر جاتی ہے۔

اب کیجئے انصاف کہ جس کی ہو یہ اوقات آرام جو چاہے وہ کرے، وقت کہاں ہے

سوؔدا کہتے ہیں کہ اب آپ ہی انصاف کیجئے جس آدمی کی یہ حالت ہو کہ دن بھر طالب علموں کو پڑھائے اور رات بھر گھر کا حساب وکتاب لکھتے تو اس کو آرام کہاں نصیب ہوگا۔

چاہے جو کوئی شیخ بنے بہر فراغت چھٹتے ہی تو شعرا کا وہ مطعونِ زباں ہے

سوؔدا کہتے ہیں اگر کوئی شیخ بننا چاہتا ہے تو شوق سے بنے۔شیخ بننے میں کوئی پابندی نہیں ہے۔لیکن شیخ بن کر وہ شعراء کے طعنوں سے بچ نہیں سکتا۔شعراء حضرات ان پر طعنے دینے شروع کریں گے۔

تحقیقی ہوا عرس تو کر داڑھی کو کنگی لے خیل مریداں گئے وہ بزم جہاں ہے

سوداؔ کہتے ہیں کہ شیخ صاحب یا پیر صاحب کا یہ حال ہے کہ وہ اکثر اپنے مریدوں سے عرس کی تحقیق کرتا رہتا ہے اور جب اس کو کسی صاحب مزار کے عرس کی خبر ملتی ہے تو وہ زیبائش و آرائش کر کے اور اپنی داڑھی سنوار کے اپنے مریدوں کی جماعت لے کر صاحب مزار کے آستان پر جاتے ہیں اور اس عرس کے مزے لوٹتے ہیں۔

ڈھولک جو لگی بجنے، تو واں سب کو ہوا وجد کوئی کودے کوئی رودے، کوئی نعرہ زناں ہے

سوداؔ کہتے ہیں کہ آستان میں عرس کے موقعہ پر جب قوّال ڈھولک بجاتا ہے تو اس کی آواز سنتے ہی پیرو مریداں کو وجد طاری ہوتا ہے۔ یعنی ان پر مستی چھا جاتی ہے۔ اس ذوق وشوق اور مستی کی حالت میں کوئی ناچنے لگتا ہے تو کوئی رقص کرتا ہے۔ کوئی رونے لگتا ہے تو کوئی نعرے بلند کرتا ہے۔ مختصر یہ کہ ڈھولک کا جادو اہل بزم کے وجد کی وجہ بن جاتی ہے۔

قصیدہ شہر آشوب کے کتابی سوالات کے جوابات

جواب ۱:

سوداؔ نے قصیدہ شہر آشوب میں جن پیشوں کا ذکر کیا ہیں ان کی فہرست مندرجہ ذیل ہے۔

ا) سوداگری ب) شاعری ج) ملّائی د) مدرسی ز) سائیسی ہ) پیری و درویشی وغیرہ

جواب ۲:

قصیدہ میں درج شدہ وہ الفاظ جو اب استعمال نہیں ہوتے یا جن کے معنی بدل گئے ہیں وہ درج ذیل ہیں۔

الف) میں نے کیا عرض بمعنی میں نے عرض کیا

ب) انہوں کا بمعنی ان کا

ج) کسو کی بمعنی کس کی

د) میں سوداؔ کو بمعنی میں نے سوداؔ کو

ط) واں بمعنی وہاں

ظ) یاں بمعنی یہاں

ف) چھٹے ہی بمعنی چھوٹتے ہی

ق) اخوند بمعنی استاد

ہ) سو بمعنی وغیرہ

جواب (۴) اور جواب (۵) شہر آشوب سے مراد فتنہ وفساد کا شہر یا شور وغوغا کا شہر ہے۔

شہر آشوب ایسی نظم کو کہتے ہیں جس میں کسی شہر کی تباہی اور بدحالی یا زمانے کی عام ابتری اور بدنظمی کا ذکر ہو۔ ۱۸۵۷ء کی بغاوت کے بعد دلی شہر پر انگریزوں نے اپنا غصّہ خاص طور سے اتارا اور اسے خوب تباہ و برباد کیا۔ اس تباہی پر رنج وغم کا اظہار کرنے کے لئے جو نظمیں لکھی گئی ان کو شہر آشوب کہا گیا ہے۔ چونکہ سوداؔ کا یہ قصیدہ بھی دلی شہر کی تباہی کا حال بیان کرتا ہے اس لئے سوداؔ نے اس قصیدے کو شہر آشوب قرار دیا ہے۔

مرثیہ نگاری

مرثیہ 'رثا' سے مشتق ہے جس کے لغوی معنی مرحوم کی تعریف کے ہیں۔ اصطلاح شعر میں اس صنف کو کہتے یں جس میں کسی مرنے والے کی تعریف وتوصیف اور اس کی وفات پر اظہار ماتم کیا جائے۔ ابتداء میں مرثئے بہت مختصر ہوا کرتے تھے۔ تین سے چھ مصرعوں والے بند بھی نظم کی حالت میں استعمال ہوئے ہیں۔ مرثیہ کے اجزائے ترکیبی کا تذکرہ ذیل درج ہیں۔

الف) چہرہ:

چہرہ مرثیہ کی تمہید کو کہتے ہیں۔ اس میں شاعر مختلف مضامین نظم کرتا ہے۔ جن کا مرثیہ کے اصل موضوع سے براہ راست تعلق نہیں ہوتا جیسے صبح کا منظر، رات کا سماں، گرمی کی شدت دنیا کی بیثباتی، سفر کے مصائب، حمد ونعت وغیرہ۔

ب) سراپا:

اس میں مرثیہ کے ہیرو کے قد وقامت، خدوخال اور دیگر اوصاف کو بیان کیا جاتا ہے۔

ج) رخصت:

اس حصّے میں ہیرو کو میدان جنگ میں جانے کیلئے حضرت حسینؓ سے اجازت لیتے ہوئے اور تمام عزیزوں سے رخصت ہوتے دکھایا جاتا ہے۔

د) آمد:

اس میں ہیرو گھوڑے پر سوار ہوکر شان وشوکت کے ساتھ میدانِ جنگ میں جاتا ہے۔ گھوٹے کی بہادری، وفاداری مبالغہ آمیز اسلوب سے بیان کی جاتی ہے۔

س) رجز:

ہیرو اپنے خاندان کی تعریف اپنے بزرگوں کے کارنامے بیان کرتا ہے۔اور جنگ کے معاملات میں اپنی مہارت اور بہادری کا بیان کرتا ہے۔ دشمن کے جس پہلوان سے مقابلہ کرتا ہے وہ بھی اپنی بہادری اور خاندانی کارنامے مبالغہ آمیز انداز میں بیان کرتا ہے۔

جنگ:

ہیرو مقابل کے کسی نامور پہلوان یا پوری فوج سے بڑی شجاعت اور بہادری کے ساتھ لڑتا ہے۔ جنگ کے ضمن میں ہیرو کی تلوار اور گھوڑے کی تعریف کی جاتی ہے۔

شہادت:

ہیرو میدان جنگ میں دادِ شجاعت دیتے ہوئے آخر دشمن کے ہاتھوں زخمی ہو کر شہید ہو جاتا ہے۔مرثیے کے اس جُز میں اسی شجاعت کا بیان انتہائی موثر انداز میں کیا جاتا ہے۔

تدفین:

اس آخری حصّے میں اس منظر کی تصویر کشی کی جاتی ہے جب ہیرو کی لاش پر اُس کے رشتہ دار خاص کر رشتے کی عورتیں اس کی خوبیاں بیان کرتی ہیں۔

حضرت علی اصغر رضی اللہ تعالیٰ عنہٗ کیلئے پانی مانگنا از مرزا سلامت علی دبیرؔ

ہر ایک قدم پہ سوچتے تھے سِبط مصطفیٰ — لے تو چلا ہوں، فوج عمر سے کہوں گا کیا
نے مانگتا ہی آتا ہے مجھ کو نہ التجا — منت بھی گر کروں گا تو کیا دیں کے وہ بلا
پانی کے واسطے نہ سنیں گے عسو مری
پیاسے کی جان جائے گی اور آبرو مری

مرثیہ کے اس بند میں مرزا سلامت علی دبیرؔ کہتے ہیں حضرت حسینؓ قدم قدم پر سوچتے تھے کہ اصغر علی کو عمر کی فوج کے قریب لیچلا ہوں لیکن میں ان کو پانی کیلئے گذارش کیسے کروں مجھے تو نہ التجا کرنی آتی ہے اور نہ ہی مانگنا آتا ہے۔ اگر میں ان سنگ دل اور بدبختوں سے گذارش بھی کروں گا تو ان کے دل پر کوئی بھی اثر نہیں ہوگا اور نہ ہی وہ یہ سننے کیلئے تیار ہیں۔ یہ سنگ دل کم ظرف رحم نہیں کھائیں گے اور مجھے یقین ہے کہ وہ پانی نہیں پلائیں گے۔ آج علی اصغرؓ کی جان اور میری آبرو یقیناً جائے گی۔

پہنچے قریب فوج تو گھبرا کے رہ گئے — چاہا کریں سوال پر شرما کے رہ گئے
غیرت سے رنگ فق ہوا ٹھرا کے رہ گئے — چادر پسر کے چہرے سے سرکا کے رہ گئے
آنکھیں جھکا کے بولے کہ یہ ہم کو لائے ہیں
اصغر تمہارے پاس غرض لے کے آئے ہیں

جب حضرت حسینؓ دشمن کی فوج کے قریب اپنے ہاتھوں میں اپنے بچے علی اصغرؓ کو لائے تو وہ گھبرا کے رہ گئے۔ انہوں نے چاہا کہ ان سے پانی کے بارے میں سوال کریں گے۔ لیکن جھجک محسوس ہوئی اور شرما گئے۔ غیرت کی وجہ سے ان کے چہرے کا رنگ زرد پڑ گیا اور

تھرّ اہٹ محسوس ہوئی۔ اپنے بیٹے کے چہرے سے چادر سرکائی اور آنکھیں نیچی کر کے فرمایا کہ میں یہاں نہیں آتا مگر مجھے اس بچے نے آپ کے پاس لایا ہے۔ اور اصغر تمہارے پاس عرضی لے کے آیا ہے۔

گر میں یہ قول شمر عمر ہوں گناہ گار　　یہ تو نہیں کسی کے آگے قصور وار
شِش ماہہ بے زبان نبیؐ زادہ شیر خوار　　ہفتم سے سب کے ساتھ یہ پیاسا ہے بیقرار
سِن ہے جو کم تو پیاسی کا صدمہ زیادہ ہے
مظلوم خود ہیں اور یہ مظلوم زادہ ہے

حضرت حسینؓ دشمن کے فوجوں کو سمجھا رہے ہیں کہ اگر میں شمر اور عمر کے قول کے مطابق گناہ گار ہوں لیکن یہ معصوم بچہ بے قصور ہے۔ اس پر رحم کرو۔ چھ مہینے کا بچہ، نبی کا نواسہ دودھ پیتا بچہ، سات دنوں سے پانی کے لئے ترس رہا ہے۔ بے قرار اور بے چین ہے۔ عمر چھوٹی ہے۔ لیکن پیاس کی شدت زیادہ ہے۔ میں تو خود بھی مظلوم ہوں اور یہ مظلوم زادہ ہے۔

یہ کون بے زباں ہے تمہیں کچھ خیال ہے　　دُرِّ نجف ہے بانوے بے کس کا لال ہے
مان لو، تمہیں قسمِ ذوالجلال ہے　　یثرب کے شاہ زادے کا پہلا سوال ہے
پوتا علیؓ کا تم سے طلب گارِ آب ہے
دے دو کہ اس میں نام وری ہے ثواب ہے

آگے چل حضرت حسینؓ دشمن کی فوج کے سامنے فرماتے ہیں کیا تم جانتے ہو کہ یہ بے زبان معصوم بچہ کون ہے؟ یہ حضرت علیؓ کا نواسہ ہے اور بانوے بے کس کا بیٹا ہے۔ حضرت علیؓ کا پوتا اب تم سے پانی کی مانگ کر رہا ہے۔ خدا کے لئے اس کو پانی پلاؤ اس میں تمہاری ناموری ہے اور یہ نیک کام بھی ہے۔

پھر ہونٹ بے زبان کے چومے جھکا کے سر رو کر کہا جو کہنا تھا سو کہہ چکا پدر
باقی رہی نہ بات کوئی اے مرے پسر سوکھی زبان تم بھی دکھادو نکال کر

پھیری زبان کیوں پہ جو اس نور عین نے
تھرا کے آسمان کو دیکھا حسینؓ نے

حضرت حسینؓ نے اپنی تقریر کے بعد علی اصغر کے ہونٹ چوم لئے اور سر جھکا کے روتے ہوئے فرمایا اے میرے بیٹے جو کچھ باپ کو کہنا تھا سو کہہ چکا ہوں اب میں نے کوئی بات باقی نہ رکھی۔ اپنی سوکھی ہوئی زبان باہر نکار کران کو دکھادو۔ اس کے بعد علی اصغر نے اپنی زبان ہونٹوں پر پھیر دی اور حضرت حسینؓ تھراتے ہوئے خدا کی جانب بے کسی کی حالت میں رجوع کر رہے ہیں۔

کتابی سوالات کے جوابات

جواب:

حضرت امام حسینؓ نے یزیدی افواج سے یہ سوال کیا کہ کیا تم جانتے ہو کہ یہ بے زبان بچہ کون ہے؟ یہ حضرت علیؓ کا نواسہ ہے اور بے بس بانوؓ کا بیٹا ہے۔ حضرت علیؓ کا پوتا اب تم سے پانی مانگ رہا ہے۔ خدا کے لئے اس کو پانی پلاؤ اس میں تمہاری ناموری ہے اور یہ نیک کام بھی ہے۔

نعت از رسا جاودانی

بنی نوعِ انسان کا غم خوار آیا　　وہ تخلیق عالم کا شکار کار آیا
وہ نبیوں کا سرتاج سردار آیا　　خوش اندام آیا خوش اطوار آیا
تو آیا تیرے آنے کی آرزو تھی　　نگاہوں کو بس تیری ہی جستجو تھی

نظم نعت کے اس بند میں شاعر رسا جاودانی نعمت آمد مصطفیٰ ﷺ کی عکاسی کرتے ہوئے کہتے ہیں کہ آدمؑ کے سلسلۂ نسب سے ایسے انسان کام کا نمود ہوا جو تمام انسانوں کی غم دفائی کے لئے موثر ثابت ہوئے۔

تمام مخلوقات خالق یعنی خدا تعالیٰ کے تمام تخلیق شدہ جاندار و بے جان عالم میں بہترین نمونہ ثابت ہوئے۔ حضور پیغمبر آخر الزماں سرور عالم حضرت محمد ﷺ کو خالق نے بادشاہ و سردارِ انبیاء کے سہرہ سے بھی نوازا۔

آپ ﷺ کے بدن اطہر کا قرینہ قرینہ پُر نور و خوبصورت تھا۔ آپ ﷺ کی فطرت اور طور طریقے باعثِ کشش ثابت ہوئے۔ جب حضور بصورت نبی عیاں ہوئے تو آپؐ کے اطوار دیکھ کر ایسا محسوس ہوا جیسے صدیوں سے مخلوق کو آپؐ کی آمد کی آرزو تھی اور ان کی نگاہوں کی چمک سے یہ ظاہر ہوا کہ جیسے یہ نگاہیں صدیوں سے آپ کے دیدار کی منتظر تھیں۔

تو اے ابر رحمت جو دنیا میں آیا　　شرف آدم و آدمیت نے پایا
تو وہ سروقامت نہیں جس کا سایا　　مگر بن کے رحمت تو عالم پہ چھایا
قدم تیرا جب سے پڑا ہے زمین پر　　زمین فوق رکھتی ہے عرش بریں پر

آپ کی رحمت اس دنیا میں اس طرح سایہ ڈالتی ہے جس طرح کسی مخصوص جگہ پر ابر کا ٹکڑا سایہ ڈالتا ہے۔ آپؐ کی آمد سے انسان کیا بلکہ انسانیت کو وہ مقام وہ عزت واپس حاصل

ہوئی جس سے وہ مدتوں محروم تھا۔

خالق نے آپؐ کو اس معجزے سے نوازا تھا کہ آپؐ کے بدنِ اطہر سرو قامت بے سایہ تھا یعنی آپؐ کے بدن مبارک کا سایہ نہیں بنتا تھا۔ اس کے باوجود بھی پورے عالم پر آپؐ نے اپنی رحمت کا سایہ ڈال دیا۔

آپؐ کی اس دنیا میں موجودگی کی وجہ سے یعنی دنیا کی زمین پر آپؐ کے پائے ناز پڑنے کی وجہ سے یہ زمین آسمانوں سے درجے میں بالاتر ہوگئی۔

پیام آشتی کا ہے قرآن تیرا ہوا جاں گزیں دل میں فرمان تیرا
کرم ہر کسی پر ہے یکسان تیرا ہے دھرتی کے کندھوں پر احسان تیرا
جو سفقت مسلمان کے حال پر ہے وہی غیر مسلم پہ تیری نظر ہے

رسا جاودانی اس بند میں کہتے ہیں کہ حضورﷺ پر نازل شدہ کتاب یعنی قرآن امن کا درس دیتی ہے۔ انسانیت کی صحیح ترجمانی کے فرمان کا لباس قرآن کا لفظ نقط پہن چکا ہے۔ فرمانِ قرآن کی صداقت کی وجہ سے اس پاک کتاب نے ہمارے دلوں میں جگہ پالی۔ حضورﷺ نے فرمانِ خدا تعالیٰ کی عمل کر کے اور تلقین کر کے ہر ایک فرد کے ساتھ ایک جیسا سلوک گیا۔ اپنے اوصاف کامل کی وجہ سے اس زمین اور تمام مخلوقات خواہ وہ مسلمان ہو یا غیر مسلم آپﷺ کے احسان چکا ہی نہیں سکتے۔ آپﷺ نے جو عزت مسلمانوں کو دی وہ ہی نظر غیر مسلموں پر بھی کی۔

یہ کردار تیرا نہ کیوں دل کا بھائے تو دل سے کیوں نہ من میں سمائے
تیری راہ میں جس نے کانٹے بچھائے رہے تیری شفقت کے اس پر بھی سائے
کدورت سے ہستی رہی پاک تیری بچی آنکھ میں سانِ لولاک تیری

رسّا کہتے ہیں کہ حضورﷺ کے کردار واوصاف کی محض جنبش ہی دل کو پسند آتی تھی۔ مکمل عمل کی تو بات ہی نہیں۔ ایسے صفات کامل والا شخص ہمارے دلوں میں جگہ نہ پائے تو اور کون پائیں۔ ہمارے دلوں کو نہ لبھائیں تو کون لبھائیں۔ آپؐ کی زندگی میں یا منصوبوں میں جس کسی عدو نے بھی رکاوٹیں پیدا کر دیں آپؐ نے اس کو بھی محبت وشفقت کے سایے سے محروم ہونے نہ دیا۔ آپؐ کی ذات عطہر، اطوار اطہر اور طبیعت کا نور ہماری آنکھوں میں بس گیا اور دلوں میں بھی بس گیا۔

رام چندر جی اپنی ماں سے رخصت لیتے ہوئے

بند(الف):

کیا جانے کس خیال میں گم تھی وہ بے گناہ　　بور نظر پہ دیدۂ حست سے کی نگاہ
جنبش ہوئی لبوں کو بھری ایک سرد آہ　　لی گوشہ ہائے چشم سے اشکوں نے رخ کی راہ
چہرہ کا رنگ حالتِ دل کھولنے لگا　　ہر موے تن زباں کی طرح بولنے لگا

اس بند میں شاعر چکبستؔ رام چندر جی کی ماں کے دردِ رخصت کی عکاسی کرتے ہوئے کہتے ہیں کہ رام چندر جی کی ماں ان کی رخصتی کے وقت خیالوں میں گم تھیں۔ اسی بے خبری میں اپنے لخت جگر بیٹے کے چہرے کی طرف چشمۂ حیرت سے نظر ڈالی۔ رخصتی کے درد کی وجہ سے وہ بت بنے بیٹھی تھی۔ درد کی شدت ہونٹوں کی تھرتھراہٹ میں بدل کر بصورتِ آہ کی ظاہر ہوئی۔ یا رائے ضبط نہ ہوا کہ ان کی آنکھوں سے پیہم آنسوں نکل پڑے۔ اور رخساروں کی راہ لیتے ہوئے دامن پہ گر گئے۔ ان کے دل کا درد چہرے کے رنگ سے ظاہر تھا۔ بدن مادر کا ہر ایک جز زبان کی طرح آہ وفغاں کرنے لگا۔

بند(ب):

آخر اسیر یاس کا قفل دہن کھلا　　واتھا دہان زخم کہ باب سخن کھلا
اک دفتر مظالم خرچ کہن کھلا　　افسانۂ شداید رنج و سخن کھلا
درد دل غریب جو صرف بیاں ہوا　　کون جگر کا رنگ سخن سے عیاں ہوا

اس بند میں چکبستؔ کہتے ہیں کہ آخر کار رام چندر کی ماں نے قیدِ صبر کا تالا کھول دیا۔ اس کے لبوں سے شدت سے بھرے ہوئے آہ وفغاں کے کلمات ظاہر ہو گئے۔ جیسے دنیائے غم کا دروازہ کھل گیا اور اس نے مظلومیت کے احساس کی وجہ سے غموں کا دفتر کھول دیا اور اپنے

تکالیف کا افسانہ افرادموجودکوسنانے بیٹھ گئی۔اس دردبھرے افسانے سے اس کے جگر کے خون کا دردظاہر ہوا۔

بند(ج):

سن کر زبان سے مان کی یہ فریاد درد خیز　　اس خستہ جاں کے دل پہ چلی غم کی تیغ تیز
عالم یہ تھا قریب کہ آنکھیں ہوں اشک ریز　　لیکن ہزار ضبط سے روزے سے کی گریز
سوچا یہی کہ جان سے بے کس گزر نہ جائے　　نا شاد ہم کو دیکھ کے ماں اور مر نہ جائے

اس بند میں چکبستؔ رام چندر جی کے ضبط کی عکاسی کرتے ہوئے کہتے ہیں کہ اپنی ماں کی زبان سے دردبھری فریادسن کررام چندر جی کے دردبھرے دل پرغم کی تلوارجیسی چلی۔دردکی شدت کی وجہ سے آنکھوں سے آنسوں گرنے والے تھے کہ اچانک اپنی ماں کا خیال آیا کہ یہ بے چاری میرے آنسوؤں کی وجہ سے جان سے جائے گی۔اسلئے صبر کرتے ہوئے اپنے آنسوؤں کو روک لیا۔

بند(د):

کہتے تھے لوگ دیکھ کے ماں باپ کا ملال　　ان بے کسوں کی جان کا بچنا ہے اب محال
ہے کبریا کی شان گزرتے ہی ماہ وسال　　خود سے درد ہجر کا کٹتا گیا خیال
ہاں کچھ دنوں تو نوحہ ماتم ہوا کیا　　آخر کو روکے بیٹھ گئے اور کیا کیا

اس بند میں چکبستؔ کہتے ہیں کہ ماتم کا منظر دیکھ کریعنی ماں اور بیٹے کا ملال دیکھ کرافرادِ موجود نے یہ خیال بٹھایا کہ ان دونوں کا بچنا آج مشکل ہے مگر واہ رے خالق کی شان! کہ دن اور مہینے گزرتے ہی بڑے سے بڑے دردکی دوا ہوجاتی ہے۔یعنی وقت سب سے بڑا مرحم ہے۔ مہینے سال گزرتے ہی جدائی کے غم کا خیال دل سے رفع ہوتا ہے۔اگرچہ شروعاتی دنوں میں فریاد

وماتم ہوامگرآخرکارروتے روتے سب نے صبرکرناسیکھ لیا۔

بند(د):

اکثر ریاض کرتے ہیں پھولوں پہ باغباں ہے دن کو دھوپ کو شبنم انہیں گراں
لیکن جو رنگ باغ بدلتا ہے ناگہاں وہ گل ہزاروں پردوں میں جاتے ہیں رائیگاں
رکھتے تھے جو عزیز انہیں جان کی طرح ملتے ہیں دستِ یاس وہ برگِ خزاں کی طرح

جس طرح گلیچیں باغ کوسجانے کے لئے محنت ومشقت کرتا ہے۔اسے ہرایک مضر مودوں سے حفاظت مہیا کرتا ہے۔مگرافسوس کہ اس چمن پر جب خزاں کی آمد ہوتی ہے تو چمن تاراج ہوجاتا ہے۔اور پھول بے رنگ ہوجاتے ہیں۔اگرچہ اس چمن کو ہزاروں حفاظتی پردوں میں رکھا بھی ہوگا۔اگرچہ گلیچیں ان پھولوں اور پتوں کو اپنی جان سے بھی زیادہ پیار کرتا ہے۔ خزاں کی وجہ سے چمن لٹتے ہوئے دیکھ کر مایوسی کے ہاتھ ملنے کے بغیر کوئی چارہ نہیں رہتا۔

بند(ہ):

اپنی نگاہ ہے کرم کارِ ساز پر صحرا چمن بنے گا وہ ہے مہرباں اگر
جنگل ہو یا پہاڑ سفر ہو کہ حضر رہتانہیں وہ حال سے بندوں کے بےخبر
اس کا کرم شریک اگر ہے تو غم نہیں دامانِ دشت دامنِ مادر سے کم نہیں

نظم کے آخری بند میں چکبستؔ خالق کی رحمت کی عکاسی کرتے ہوئے کہتے ہیں کہ مظلوم اور درد کے ماروں کی نظر اور بھروسہ ہمیشہ اسی بگڑی بنانے والے خالق پر ہوتا ہے۔اس کی مہربانی اگر ساتھ ہوتو صحراؤں میں بھی چمن کا احساس ہوتا ہے۔درد بھی سکون کا مزہ دیتا ہے۔وہ اپنے بندوں پر ہمیشہ کریم ہوتا ہے۔اوران کے حال سے لمحہ بھر بھی بےخبر نہیں ہوتا۔خالق کا کرم جس پر ہواُسے درد کا کیا درد ہوگا۔اس کیلئے ریگستان کا درد بھرا دامن بھی ماں کے سکون والا دامن ثابت ہوگا۔